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MAC EXPO SPECIAL REPORT

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The Digital Hub Grows Up

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REVIEWED:

← PowerShot S230 Digital Elph, Macromedia Director MX, ABS Plus, Bugdom 2, No One Lives Forever, CorelDraw Graphics Suite 11, BBEdit 7.0.1, and more...



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EXPO SPECIAL REPORT

20 Freakin' Awesome!

The recent Mac Expo featured the attack of the killer apps and the coming-out party for PowerBooks big and small. Get all the facts and in-depth analysis—along with our unalloyed opinions—on Apple's new offerings.

by the **MacAddict** staff

So many PowerBooks, so little cash.



FEATURES

28 Printer Bonanza

Whether you're buying your first printer or upgrading from an old one, you need to know which one can handle everything you throw at it—so we tested and rated 18 of 'em for you.

by **Kristina De Nike**

Printer? I don't even know...oh, nevermind.



36 Be Prepared: Disk Utilities Explained

To keep your Mac healthy, you need a disk utility—or two. But do you know why? Or how they work their magic? Or what an extents file is and why you should care? We reveal all.

by **Deborah Shadovitz**



What's next? Vinyl?

HOW TO

60 Ask Us

Did you know that Mac OS X is fussy about RAM, that you can put faster hard drives in PowerBooks, and that you can launch apps from the Terminal? Uh-huh, it's all true.

62 Access Your Mac with the Terminal

It may be terminal, but it won't kill you. Here's an intro to the Terminal and how to use Unix commands to find stuff by content and to reboot another Mac remotely.

by **Mary E. Tyler and Kris Fong**

68 Turn Your Old Power Mac into a Digital Hub

Beige may be "so 1990s," but your trusty old beige box isn't useless in today's world of Snow, Silver, and Graphite. Here's how to turn your old Power Mac into a multimedia marvel.

by **Kris Fong**



71 Hijack the Poof

It's OK to throw stuff overboard—icons off the Dock, that is. If the lil' disappearing-cloud animation once amused you but now leaves you feeling poofed out, you can change it. We show you how.

by **Paul Yoon and Kris Fong**



Hasta la vista, Poofy.

72 Customize an Application's Splash Screen

Sick of staring at the same old startup screens when you fire up slow-loading apps? There's a cure. We show you how to create your very own splash screens for OS X apps.

by **Paul Yoon**

Transform your digital schlub.



Godzilla's little brother, Moe, appeared in the little-known comedy, *The Three Mutated Reptile Stooges*.

MARCH 2003
NO. 79 • VOLUME 8 • ISSUE 3

ON THE COVER



Cover photograph
by Mark Madeo.

EVERY MONTH

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Do people really create Mac hardware and software with pride and passion? People do.

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If you missed the boat to Mac Expo 2003, we've got the best of show right here, along with a wild, wireless wonder straight from Woz's wallet. Also, the Mac gets force feedback and makes music for Sega's console games, and a San Francisco design firm reveals the secrets behind some very precious package design.

45 Reviews

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Search your soul and win a lightning-fast LaCie d2 FireWire CD-RW.

96 Shut Down

Apple's locked in mortal combat for the education market—check out its latest foot soldiers.

If only the real Billy G.'s brain were as sweet.



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Widescreen's cool, but it's hip to be square.



Belkin's new prosthetic for Darth Vader.

QUICK TIPS

...from this month's issue.

AVOID BOREDOM

When rebuilding your desktop, don't just sit there holding down the Option and Command keys when you could be doing something more fulfilling—just wedge a nickel between 'em, and they'll stay pressed down.

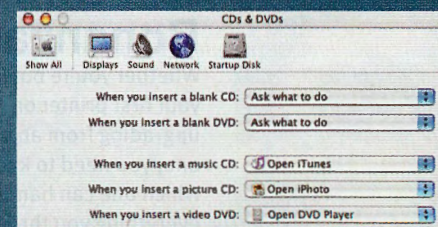
From *Log Out*, p94



CONTROL YOUR DISCS

If you've never ventured into the CDs & DVDs system preference pane in Mac OS X, check it out—you've got a lot of power over what your Mac does when you insert a disc.

From *Ask Us*, p60

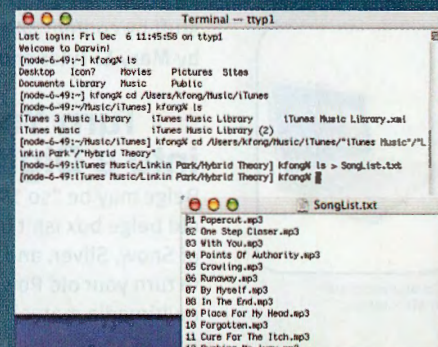


PHOTOS OR TEXT? CHOOSE BEFORE YOU BUY

Don't expect a photo printer—no matter how high its resolution—to print text as crisp as that from even an inexpensive laser printer. On the other hand, thinking you can get great photo images from a laser printer is, well, just silly. From *"Printer Bonanza,"* p28


SAVE TIME BY USING THE TERMINAL

In OS X, it takes a couple minutes to create a song list by finding an album's song titles and copying and pasting them into a text file. In the Terminal, just type one simple command and you'll be done in 10 seconds or less. From *"Access Your Mac with the Terminal,"* p62



BEFORE THE FINAL CUT, YOU NEED SONY'S ROUGH CUT™

The ecstasy of computer-based non-linear editing applications is matched only by the agony of finishing a project and cleaning out your hard drive, then getting hit with additional changes. Instead of wasting hours recreating the job from scratch, save and retrieve it with Sony's new Rough Cut™ Advanced Video Editing Storage solution.

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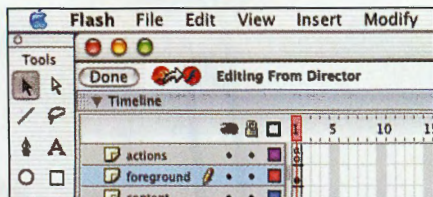
AITSECURITY



theDisc

TAKE HOME THE BIG BOYS

This month, we've got some serious equipment designed for wrestling with industrial-strength projects. Put on your hard hat, pop in the Disc, and install these two 30-day demos of pro-power apps that can handle all your heavy lifting.



Macromedia Director MX

This versatile multimedia development tool has been around for years—and it's improved with each version. Director makes it easy to work with graphics, sound, video, animation, and about anything else you can throw at it.

CorelDraw Graphics Suite 11

This full-featured graphics suite gives you all the tools you need for design—including drawing and illustration, photo manipulation, page layout, and vector animation.

Relax!

When you're finished being superproductive, kick back with one of these nifty games, inspired by classics from the past.



Remember Breakout? Creepy Mines 1.1 is a twisted takeoff.

Froggy's Songs 1.2 is an amphibian version of the memory game, Simon.



If you played Minesweeper as a kid, you'll love **BombSquad 1.0**.



Raptor 1.0.1 will put an arcade enemy in your sights.

theList

AUDIO & MUSIC

AudioHijack 1.6

DEVELOPMENT

4D Business Kit 1.2.2 demo
4D WebStar V 5.2.3 demo
Director MX trial
HtmlMapMaker 1.1
REALbasic Classic 4.5.2 trial
REALbasic Carbon 4.5.2 trial

FUN & GAMES

BombSquad 1.0
Bugdom 2 1.0.3 demo
Creepy Mines 1.1
Froggy's Songs 1.2
Raptor 1.0.1

GRAPHICS & MULTIMEDIA

CorelDraw Graphics Suite 11 trial
MacFilmGimp 0.10-4

INTERFACE

Creature 1.1.2
Measles 2.0

INTERNET & COMMUNICATION

Mallsmith 1.5.4 demo
MailSwitch 1.2
Mozilla 1.2.1
Netscape (OS X) 7.0
Nisus Email (OS 9) 1.6.1 demo
Nisus Email (OS X) 1.6.1 demo
PowerMail 4.0.1 demo

PRODUCTIVITY

AccountEdge 3.0.2 trial
BBEdit 7.0.1 demo
iData Pro (Classic) 1.0.3 demo
iData Pro X 1.0.4 demo
TypeIt4Me 4.8.2
TypeIt4Me X 1.0

UTILITIES

DiskTracker 2.2.2
DiskTracker (OS X) 2.2.2
Fink 0.5.0a
Macaroni 1.3
No Popups Classic 1.2
No Popups X 1.2
TinkerTool 2.32
wareWolf a3.0

SPONSORS

DriveSavers: Video Demonstration
MYOB:
AccountEdge 3.0.2 trial
REAL Software:
REALbasic Carbon 4.5.2 trial
REAL Software:
REALbasic Classic 4.5.2 trial

TO GET STARTED:

- 1 Double-click the CD-ROM icon to open it.
- 2 Double-click the About the Disc file. Carefully read and understand what this document says. Quit to close.
- 3 Double-click the MacAddict Tour icon to launch the interactive interface.
- 4 To end the Tour at any time, hold down the Command key and press Q.

REQUIREMENTS

Any Mac that can read a CD-ROM can access the shareware, demos, and system software from the Finder. Accessing the full CD-ROM interface requires a Power Mac, 8MB of RAM, an 800 by 600 resolution monitor, and QuickTime 4.

IMPORTANT

This CD-ROM is compiled from a variety of independent sources. It is offered "as is." Future Network USA makes no claim that all programs will work on all systems. Please read the legal disclaimer file included on the CD-ROM.

UPGRADE

If you don't receive the Disc with your copy of MacAddict, you might want to consider upgrading! Each monthly disc contains cool demos, useful shareware and freeware, and the inimitable MacAddict Staff Video. To get 12 issues of MacAddict that include this value-packed disc with your subscription (prorated if necessary) for just \$1 more per issue, call 888-771-6222—the operator will take care of everything.

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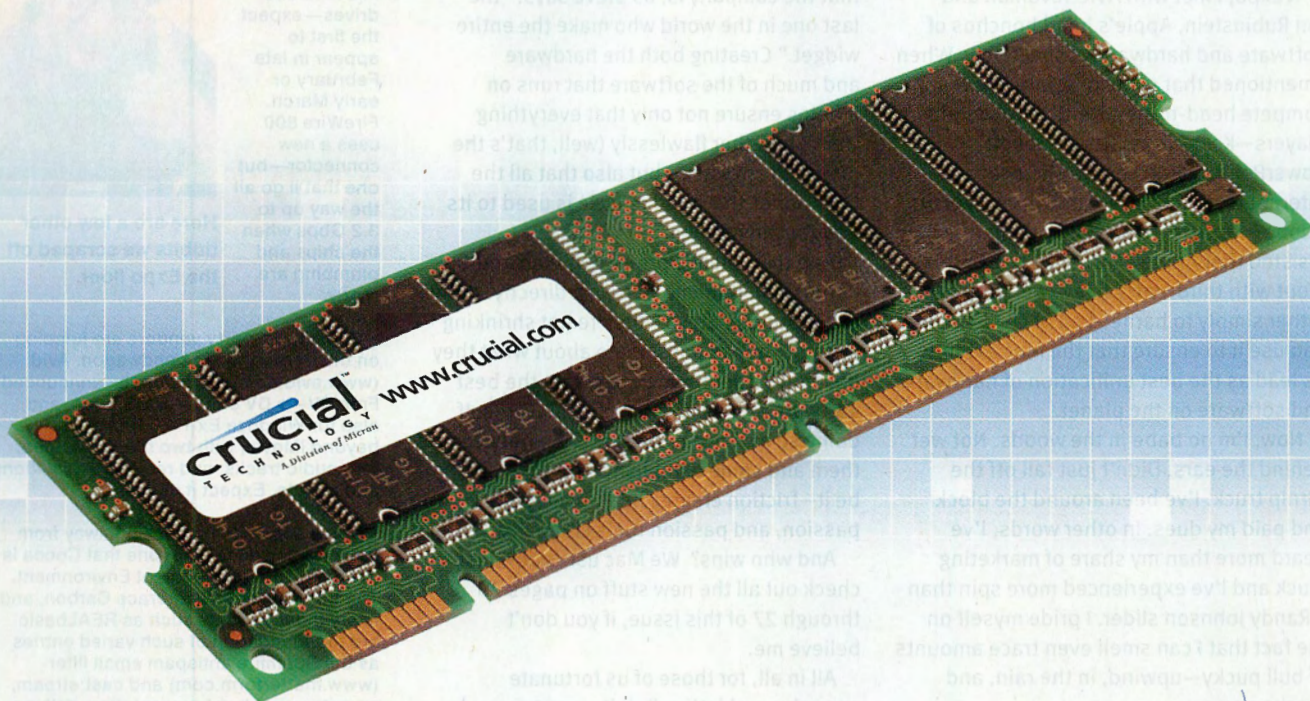
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HAVE DREMEL TOOL, WILL TRAVEL

In this sad tale of urban angst and public humiliation, **MacAddict** reviews editor, **Niko Coucouvanis**, braves the rain to offer free iPod engraving at our local Apple Store.



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Better All the Time

After Steve's keynote at the January Expo, I met with Avie Tevanian and Jon Rubinstein, Apple's head honchos of software and hardware, respectively. When I mentioned that some of Apple's new apps compete head-to-head with established players—Keynote versus Microsoft PowerPoint, Safari versus Microsoft Internet Explorer, Final Cut Express versus Adobe Premiere—they both adamantly insisted that Apple's intent wasn't to duke it out with third-party heavyweights, but rather simply to harness all of OS X's power and use it to ensure that the Mac extends its lead as the best unification of hardware and software on the planet.

Now, I'm no babe in the woods. Not wet behind the ears. Didn't just fall off the turnip truck. I've been around the block and paid my dues. In other words, I've heard more than my share of marketing muck and I've experienced more spin than a Randy Johnson slider. I pride myself on the fact that I can smell even trace amounts of bull pucky—upwind, in the rain, and blocks away.

And yet I believe these guys.

Apple's greatest strength—aside from

the creativity of its minions—is the fact that the company is, as Steve says, “the last one in the world who make the entire widget.” Creating both the hardware and much of the software that runs on it helps ensure not only that everything works together flawlessly (well, that's the intent, in any case), but also that all the OS's under-the-hood muscle is used to its greatest advantage.

And then there's pride. Tevanian and Rubinstein, remember, report directly to the oft-imperious Steve—they're not shrinking violets. They're passionate about what they do. They're determined to create the best software and hardware in the universe. If doing so at times creates friction between them and some established players, so be it—friction creates heat, heat ignites passion, and passion fuels creativity.

And who wins? We Mac users do—just check out all the new stuff on pages 20 through 27 of this issue, if you don't believe me.

All in all, for those of us fortunate enough—and let's admit it, smart enough—to be Mac addicts, it's getting better all the time.—*Rik Myslewski*

MORE

• Most storage vendors are busily creating FireWire 800 drives—expect the first to appear in late February or early March. FireWire 800 uses a new connector—but one that'll go all the way up to 3.2 Gbps when the chips and plumbing are ready.



Here are a few other tidbits we scraped off the Expo floor.

• Some third-party vendors are jumping on the free-software bandwagon. Avid (www.avid.com), for example, announced Free DV—a DV editor for OS X (oh, and also for Windoze Ex-Pee) that goes beyond iMovie, with two tracks of video, four audio tracks, and real-time transitions and effects. Expect it midyear.

• Apple seems to be backing away from trying to convince everyone that Cocoa is the One True Development Environment. The big players still embrace Carbon, and feisty independents such as REALbasic are the foundation of such varied entries as the Spamfire antispam email filter (www.matterform.com) and cast:stream, an enterprise-level presentation-delivery system (www.caststream.com).

STAFF RANTS

Q1: What app would you love to see Apple create?

Q2: What app do you hope Apple stays away from?

Chris Imlay
Crafts Faire Hater

What app would you love to see Apple create?

A simple consumer-level program for Web site design, perhaps? Or a combo of Mail and iCal that's like Entourage? Better yet, an Apple TV tuner app!

What app do you hope Apple stays away from?

InDesign. Don't mess with the best.



Cathy Lu
Safari Guide

What app would you love to see Apple create?

I would love to see Apple create a killer Mac-only game that makes people buy a Mac just to play that game—like Nintendo's Mario. Well, back to reality now.

What app do you hope Apple stays away from?

iOCR. I think I'd have to quit at that point.



Kris Fong
iLifer

What app would you love to see Apple create?

iStudio—a multitrack audio recording and sequencing app that'd work its magic for musicians in the way iMovie does for aspiring movie makers. And, of course, it'd be free.

What app do you hope Apple stays away from?

Beach Head 2003. Hopefully, MacSoft will stay away from that one too.



Niko Coucouvanis
The Twitcher

What app would you love to see Apple create?

What's left? Accounting stuff? Games? Unless you're a financially challenged Xbox owner, they already make everything you want.

What app do you hope Apple stays away from?

The day Apple busts out with an Aqua-themed solitaire game may well be the day I reverse-switch.



Narasu Rebbapragada
Temp Agency's Worst Nightmare

What app would you love to see Apple create?

I'd like to see some speech software that actually worked—I hate typing, and I'm bad at it.

What app do you hope Apple stays away from?

Painting apps. While I loved MacPaint, I think that Procreate's Painter has that niche covered.



Jenifer Morgan
Word Killer

What app would you love to see Apple create?

A powerful Apple Office package. Apple can start with bumping up the power of ThinkFree—a macro feature here, the ability to track changes there, and I can smite mine enemy Microsoft Word upon the mountaintop.

What app do you hope Apple stays away from?

Photoshop. Why even try?



Leslie Osborn
Fashion Police

What app would you love to see Apple create?

How about a Web-design app that would prevent Joe Blow from designing a site in screaming magenta or 18 point-type? That'd be a huge aesthetic service to humanity.

What app do you hope Apple stays away from?

Please, please, no more page-layout apps. If I have to learn another one, I'll cry.



Max
Roué for a Day

What app would you love to see Apple create?

Something to disable every single OS X permission. It's my Mac, and I want as much control over it as I had in OS 9.

What app do you hope Apple stays away from?

Change My Image (<http://en.infinisys.co.jp/>). Who in their right mind could care that much about hairstyles?



"I counted a forest full of trees by hand, then I got **REAL**."

What do you do when the software you really want doesn't exist? Create your own with REALbasic®. You don't have to be a programmer to create your own software with REALbasic, just like you don't need to be an accountant to crunch numbers with a spreadsheet. You can build YOUR OWN powerful custom applications for Mac Classic, Mac OS X, and Windows.

Tree growth. Tree rings. And a man on a mission. Ben Bond-Lamberty is a forest ecology researcher who uses tree rings to study how forest fires affect tree growth. The problem was, either he had to count the rings by hand or find a better way.

Enter REALbasic. In less than six hours Bond-Lamberty had a functioning prototype; he completed his new custom application in his spare time. Now he and his colleagues spend more time on research and less time counting rings—his software is much faster and up to 100 times more accurate than doing it the old-fashioned way.

Try REALbasic today for FREE.

Go to www.realbasic.com today to download a FREE demo. See for yourself how easy it is to create your own software.

REALbasic is so powerful

that professionals use it, yet so simple beginners can have their first application up and running in less than an hour. With REALbasic, you can:

- Focus on your ideas instead of the things that make programming hard.
- Make database systems, utilities, productivity tools, and games—almost any kind of software you can imagine!
- Create compiled, native applications for Macintosh and Windows, using the same code and layout with just a click of a button.
- Use standards like TCP/IP, SQL, and QuickTime.

"REALbasic lets us spend more time analyzing our data and thinking about its implications, and less time struggling to gather it."

Ben Bond-Lamberty
University of Wisconsin



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The REALbasic Demo is on the MacAddict CD

THE BEST OF MAC EXPO

Innovative Products Take San Francisco by Storm

Apple, Schmapple. Among rumors that the big guy might skip next year's Mac Expo in Boston, concerned Mac fans wondered whether a show without Apple could be any show at all. The answer is a definitive yes—that is, if Mac Expo San Francisco's floorshow was any indication.

SEXY STORAGE

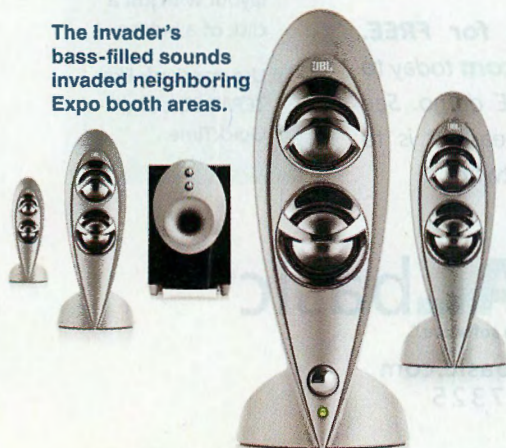
Fast drives were among the biggest news on the floor, since Apple announced FireWire 800, a faster 800 Mbps connectivity option (see "Freakin' Awesome," p20 for more). Though the FireWire 800 drives weren't available as of press time, the FireWire 800 prototypes from SmartDisk (www.smartdisk.com), LaCie (www.lacie.com), and Maxtor (www.maxtor.com) look promising.

Also noteworthy were drive designs.



The company that designed your Porsche now designs LaCie's portable 20GB drive.

The Invader's bass-filled sounds invaded neighboring Expo booth areas.



LaCie unveiled the 20GB portable bus-powered Data Bank FireWire drive (\$299), designed by F.A. Porsche. If your name starts with *Spider* and ends with *Man*, check out the rugged 40GB to 60GB bus-powered FireWire by Fortress (\$499 to \$699, www.4tress.com). Fortress says the aluminum-cased drive can fall six feet onto concrete without breaking. Your safety is another matter.



The Fortress drive can survive a six-foot drop onto concrete. Can you?



CoolShield.com's protective hood lets you work in the sunniest locations.

THE COMFORT ZONE

Consumer comfort, if not safety, was the primary concern of some other enterprising accessorizers. CoolShield.com's glare prevention hood (\$39.95, www.coolshield.com) hides your screen from sun and nosy parkers so you can work in peace. ThermalRest's Hoodman (\$49.95, www.hoodman.com) heated wrist pad frees the frigid. Because even though cold hands suggest a warm heart, they make for a very clammy handshake.

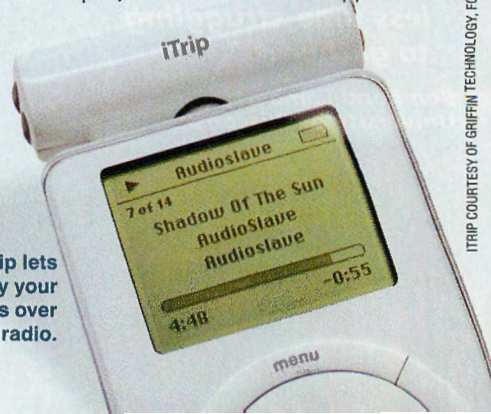
YOUR LIFE: IGO.

Rain Design's iGo (\$499, www.igo4mac.com)—an überstylish, minimalist desk for your iMac—comes with a glowing underbelly and a place to hide cords. This product screams "design firm reception area."

MUSIC NEWS

There was no shortage of iPod accessories. The best of these was Griffin Technology's iTrip

The iTrip lets you play your iPod tunes over your radio.



The iGo for iMac is a cross between an easel and a *Star Wars* Imperial Walker.

(\$35, www.griffintechnology.com), an FM transmitter for your iPod. And it's not often you meet an Emmy-award-winning songwriter. Barry Devorzon (remember "Nadia's Theme"?) was showing off his Masterwriter (\$289, www.masterwriter.com) song-writing software. Harman Multimedia's Invader 4.1 speaker system (\$179, www.harmanmultimedia.com) blasted the floor with ABBA. We sort of forgive them.

There was a heck of a lot more innovation on the floor, including Brother's Rendezvous-supported laser printer (\$499, www.brother.com) and the Puppy Suite biometric fingerprint reader. Check out "Our Floor Favorites," p13, for more products we liked, and see next month's issue for some major game news. For now, we're signing off. We'll see you at future Mac Expos, even if we don't see Apple.—NR

MAC USERS DOWNLOADED 500,000 COPIES OF SAFARI 1.0 BETA, APPLE'S NEW WEB BROWSER, DURING THE FIRST THREE DAYS IT WAS AVAILABLE.

OUR FLOOR FAVORITES

The Cream of the Expo Crop

	PRODUCT	COMPANY	PRICE	AVAILABILITY	WHAT IT IS	WHY IT'S COOL
MEDIA	Masterwriter	Masterwriter, www.masterwriter.com	\$289.00	Now	Songwriting software from a master	Huge lyric database helps you compose
	iTrip	Griffin Technology, www.griffintechnology.com	\$35.00	Spring 2003	FM transmitter for your iPod	Plays your tunes over any station on FM radio
	Radeon 9000 Pro	ATI Technologies, www.ati.com	\$169.99	Now	AGP graphics card with 64MB DDR RAM	Affordable, powerful, and drives two monitors
	Amapi 7	Eovia, www.eovia.com	\$400.00	Spring 2003	3D modeling for product design and architecture	Affordable product design app on Mac OS X
	Montage	Arboretum, www.arboretum.com	\$149.00	Now	Innovative video-editing software	Bravely undercuts Final Cut Express's price
	HomePod	Macsense, www.macsense.com	\$199.00	March 2003	Uses 802.11b to play iTunes MP3s in the house	Plays your MP3s on your stereo or in the shower
PERIPHERALS	HL-5070N	Brother, www.brother.com	\$499.00	March 2003	Networkable laser printer	The first Rendezvous-enabled printer
	Invader	Harman Multimedia, www.harmanmultimedia.com	\$179.00	March 2003	4.1 speaker system	Looks and sounds killer
	PocketMouse Pro Wireless	Kensington, www.kensington.com	\$45.00	Now	Wireless mouse that hides its USB receiver inside	Eliminates need to lug around a huge, honkin' receiver
STORAGE	Fortress Drives	Fortress, www.4tress.com	\$499.00 to \$699.00	Now	Rugged 40GB to 60GB external FireWire drives	Can drop six feet onto concrete without breaking
	FirePower	SmartDisk, www.smartdisk.com	TBD	March 2003	200GB 800 Mbps FireWire external drives	The latest, greatest, and fastest in hard drives
	Data Bank	LaCie, www.lacie.com	\$299.00	Now	20GB FireWire drive the size of a credit card	Designed by F.A. Porsche
	Rover	SmartDisk, www.smartdisk.com	\$99.00 and \$149.00	February 2003	64MB and 128MB USB flash drive that also plays MP3s	Lets you listen to tunes while toting around Word files
	Cold Chisel Slim Super Combo Drive	Century Global, www.centuryglobal.com	\$399.00	Now	Portable, FireWire bus-powered DVD-R, DVD-RW, etc.	DVD-R/RW/RAM, CD-R/RW/ROM/audio; what else do you need, the kitchen sink?
PRODUCTIVITY	G-celerator	Giga Designs, (www.fastercpu.com), distributed by OWC, www.macsales.com	\$299.00 to \$559.00	Now	800MHz and 1GHz upgrades for AGP Power Mac G4s	New upgrade-card player with low-cost cards
	ExtendAIR external antennae	Dr. Bott, www.dr.bott.com	\$99.00 and \$149.00	February 2003	Doubles or quadruples AirPort Extreme's range, depending on card	Gives you AirPort Extreme's speed without losing range
	MacWireless Power Over Ethernet	MacWireless, www.macwireless.com	\$30.00	February 2003	DC power to AirPort Base Station via Ethernet	Lets you mount your base station far from an outlet
	Webstractor	SoftChaos, www.softchaos.com	\$150.00*	March 2003	Combines and archives Web pages	Saves Web pages for research
	Data Recycler	Prosoft Engineering, www.prosofteng.com	\$49.00	Now	Undeletes files	Finds older versions of your files
	Spamfire 1.3	Matterform Media, www.matterform.com	\$19.00 to \$39.00	Now	Spam filter that works with any email program	Eliminates "Naked Farm Chicks" emails
HUM?	PocketMac 2.0	PocketMac, www.pocketmac.net	\$69.95	Now	Syncs a PocketPC with your Mac	Supports iCal, Address Book, Word, and Excel
	CoolShield	CoolShield.com, www.coolshield.com	\$39.95	Now	Glare-prevention hood	Provides protection from the sun or prying eyes
	iGo	Rain Design, www.igo4mac.com	\$499.00	Now	G4 iMac desk	Überstylish
	Puppy Suite	Sony and Pacific Software Publishing, www.pspinc.com	\$199.00	March 2003	Scans your fingerprints to give you access to your Mac	USB device makes passwords obsolete

*expected price

Your Floor Favorites

Here's What You Thought Was "Best in Show"

Andrea Rewal
Student

Valencia, California
I'm really interested in the Corel [products], iPhoto, and the Photoshop stuff...I want to be a technician, veterinarian, a photographer, and an artist.



Andre Cardenas
Filmmaker
San Francisco, California
The new PowerBooks. They are powerful enough to do real video editing.



Aaron Wilkowski
Student
Berkeley, California
Probably the (Feral Interactive) Worms Blast game. It was challenging.



Gary Davison
Graphic Artist
Goddard, Kansas
I was a little disappointed in the new hardware. I'm a desktop guy.



Albert Wu
Student
San Jose, California
The 12-inch PowerBook. It's insanely small, and it's hella cool. It's like an iBook on steroids.



Brandon Bloom
Computer Reseller
Oakland, California
The 17-inch PowerBook. What's impressive is the all-in-one package and what it weighs.



Elisa Wang
Student
Southern California
The eMagic [audio] hardware and software. It's amazing, and the speed is unbelievable.



DROOLWORTHY

Sexy Stuff We Can't Wait to Get Our Mitts On



The wireless hiptop is beautiful. So's Catherine Zeta-Jones.

hiptop ←

Danger • www.danger.com • \$199.99 (plus T-Mobile service fees)

We don't just love the hiptop because Woz is on Danger's board of directors. Also called the Sidekick, this silver sliver is a Web-browsing, emailing, instant-messaging, text-messaging, picture-snapping, game-playing GSM and GPRS wireless wonder with 16MB of memory and a 240-by-160-pixel display. Oh, yeah, and it's a phone too. Simply upload your contact information to a T-Mobile Web site, which wirelessly transmits the data to the hiptop. Right now, there's no two-way data syncing, but Danger's working on it.—NR

PHOTOGRAPH COURTESY OF DANGER

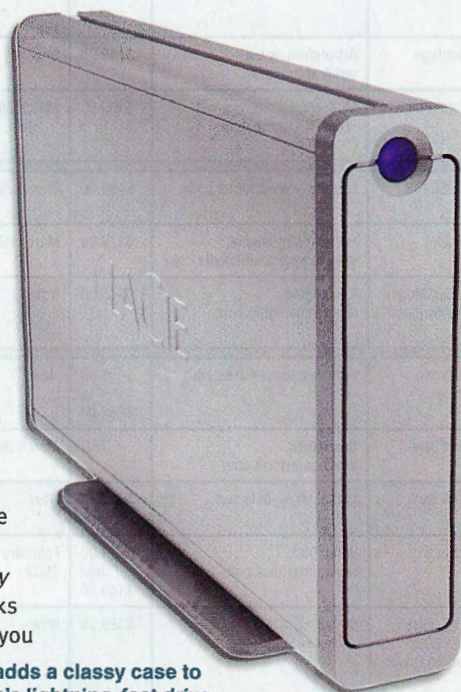
d2 FireWire CD-RW →

LaCie • www.lacie.com • \$199

WIN A D2
FIREWIRE
CD-RW!
SEE PAGE 95

LaCie isn't the only company selling Lite-On's (www.liteonit.com) lightning-fast 52X (write)/24X (rewrite)/52X (read) CD-RW FireWire drive. In fact, EZQuest is packaging the same drive in its Boa line (www.ezq.com) for \$10 less. Still, the LaCie drive gets our *Droolworthy* vote this month because of its slim, sleek aluminum case, which stacks horizontally and vertically. You can also rack-mount the LaCie drive if you purchase an optional kit.—NR

LaCie adds a classy case to Lite-On's lightning-fast drive.



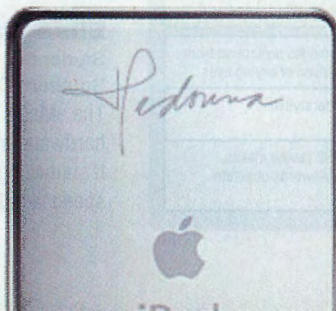
PHOTOGRAPH COURTESY OF LACIE

CELEBRITY IPODS

Apple Sells iPods with Star Signatures

Enterprising MacNN readers (www.macnn.com) noticed that Apple is selling iPods with celebrity signatures and logos engraved on the back. Apple customers can spend an extra \$49 for iPods adorned with the monikers of Beck, No Doubt, Madonna, and Tony Hawk. Apple isn't advertising the celebrity-branded iPods on its Web site—you'll find the offer on the individuals' Web sites, which link back to Apple (Tony Hawk's iPod page, for example, is at www.apple.com/promo/ipod/tonyhawk.html).

Apple says the celebrity-branded iPods will be available for a limited time only.—NR



PHOTOGRAPH COURTESY OF APPLE

From the Material Girl.

APO THWARTS APPLE

Army Post Offices Can't Receive Macs

U.S. military personnel stationed overseas are having trouble ordering new Apple hardware from the Apple Store and other Apple retailers. The reason is their pesky APO (army post office) addresses. When U.S. Air Force Technical Sergeant Jonathan Bradley, stationed in Germany, tried to buy an iBook from MacMall, he got the following message: "Due to our strict resellers agreement with Apple, we are not permitted to ship Apple products to APO addresses."

So what's GI Jon to do? Apple says military personnel stationed overseas can buy Apple products through the following resellers:

- Army & Air Force Exchange Service (www.aafes.com)
- GTSI (www.gtsi.com)
- GovConnection (www.govconnection.com)
- CDW Government (www.cdwg.com)
- MacWarehouse Government Division (www.macwarehouse.com)
- Government Micro Resources (www.gmri.com)

—NR

OS X EMAIL APPS

What They Offer (and Don't Offer)

The list of OS X email apps continues to grow. We compared eight top email clients to see how they stacked up against each other. All of the ones mentioned here support multiple accounts; only Apple's Mail supports iCal and iChat. Mail and PowerMail both support Apple's Address Book.—Bryan Chaffin

ON THE DISC
Mailsmith 1.5.4 demo, Nisus Email 1.6.1 demo, PowerMail 4.0.1 demo, Mozilla 1.2.1, and Netscape 7

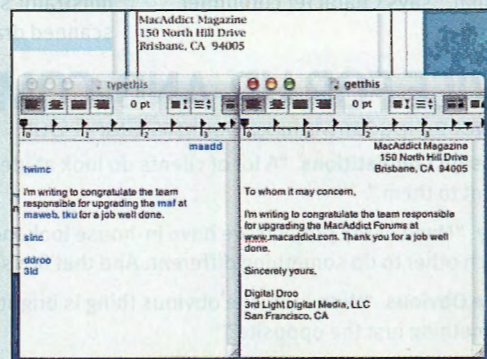
CLIENT	Mail 1.2.2	Eudora 5.2	Entourage 10.0	Mailsmith 1.5.4	Nisus Email 1.6.1	PowerMail 4.1b1	Mozilla 1.2.1	Netscape 7.0
COMPANY, CONTACT, COST	Apple, www.apple.com , free	Qualcomm, www.eudora.com , free with sponsor ads	Microsoft, www.microsoft.com/mac , free bundled with Office v. X, \$99 stand-alone	Bare Bones Software, www.barebones.com , \$99	Nisus Software, www.nisus.com , \$19.95	CTM Development, www.ctmdev.com , \$49	Mozilla.org, www.mozilla.org , free	Netscape, www.netscape.com , free
SUPPORTS IMAP OR POP3	IMAP, POP3	IMAP, POP3	IMAP, POP3	POP3	POP3	IMAP, POP3	IMAP, POP3	IMAP, POP3
SPELLING CHECKER	Checks spelling as you type	Checks spelling as you type	Checks spelling as you type	Separate spell check window	Uses your word processor's spelling checker	Supports third-party spelling checkers	Supports third-party spelling checkers	Integrated window
FILTERING	Multiple criteria, multiple actions	Multiple criteria, multiple actions	Multiple criteria, multiple actions	Multiple criteria, multiple actions	One criteria, one action	Multiple criteria, multiple actions	Multiple criteria, multiple actions	Multiple criteria, one action
MESSAGE LABELING	Yes, with third-party add-ons	Yes	Yes	Yes	No	Yes	Yes	Yes
SEARCH FEATURES	Advanced mailbox search with multiple criteria	Advanced mailbox search with multiple criteria	Advanced mailbox search with multiple criteria	Advanced mailbox search, plus grep and fuzzy searches	Basic mailbox search	Basic mailbox search	Advanced mailbox search with multiple criteria	Advanced mailbox search with multiple criteria
SPAM CONTROLS	Trainable antispam tool	Yes, through purchase of third-party plug-in	Automated spam filtering with variable control levels	SpamCop integration	No	No	Trainable spam filter	No
SECURITY	SSL, SMTP Authorization, Kerberos, MD5 Challenge-Response	SSL, SMTP Authorization, Kerberos	SSL, SMTP Authorization	SMTP Authorization	SMTP Authorization	SSL, SMTP Authorization	SSL, SMTP Authorization, can encrypt outgoing mail	SSL, SMTP Authorization, can encrypt outgoing mail
SUPPORT FOR LDAP DIRECTORY SERVICES	Yes	Yes	Yes	No	No	Yes, through third-party utility	Yes	Yes
HTML DISPLAY	Yes, also converts HTML to plain text	Yes	Yes	No, converts HTML to plain text and keeps file	No, converts HTML to plain text	Yes	Yes, also sends HTML email	Yes, also sends HTML email
VCARD	Yes	Yes	Yes	Yes	No (coming in early 2003)	No	No	No
PALM SYNCING	Yes, via third-party conduit	Yes	Yes	No	No (coming in early 2003)	No	No	No
APPLESCRIPT SUPPORT	Yes	Yes	Yes	Yes	No	Yes	No	No
WHAT'S UNIQUE	Trainable spam controls, integrated with Apple's iApps	Extremely configurable, superflexible	Built-in calendar and contact features	Configurable shortcuts and advanced search functions	Sends email from any app without opening client	Mail scheduling	Integrated with Mozilla browser, news reader	Integrated with Netscape browser, news reader

SHAREWARE PICK OF THE MONTH

TYPEIT4ME X

Riccardo Ettore • www.typeit4me.com • \$27

Typelt4Me is possibly the greatest typing utility ever made for the Mac. Now version X is available for Mac OS 10.2 and higher. Since 1989, Typelt4Me has been substituting commonly spelled words for user-defined abbreviations to increase typing speed and lower the risk of repetitive strain injuries. Use Typelt4Me X to type shorthand. Tell it to replace the abbreviation *maca* with the full word *MacAddict*. You can also fix common misspellings by telling Typelt4Me to replace *hte* with *the*. Your lightning-fast fingers won't betray you again.—Andrew Tokuda



Put your shareware to work. Typelt4Me turns your shorthand (left) into prose (right).

IN THE STUDIO

PACKAGING WITH CHARACTER

San Francisco Design Firm Raps about Wrappers



Nice package.

COURTESY OF CHARACTER

It's the whole package that counts. That's the mantra of San Francisco-based design firm Character, which marries graphic design with just the right media to create boxes, bags, and tags that are classic or cutting-edge—whatever the job requires.

And no two requirements are the same. Character has dreamed up a variety of designs such as in-store navigation for Banana Republic, a branding system for Kohler, television ads for MTV, and even a coffee-table book called *Fashion* for National Geographic.

This obsession with the visual is what draws Character to Macs. The company's loft with high ceilings and minimalist decor is home to a multitude of G4s, Cubes, iMacs, and iBooks. Character can't resist buying the latest Mac hardware. "We don't need it, but we want to have it because it's inspirational," says Character cofounder Rishi Shourie.

ADVICE FOR UP-AND-COMERS

Character's Tips for Making Designs Stand Out

Enter Design Competitions "A lot of clients do look at [design] annuals to choose what is relevant to them."

Diversify "None of the projects we have in-house look the same because we constantly push each other to do something different. And that feels really good."

Avoid the Obvious "With kids, the obvious thing is bright colors and stuff. What if we tried something just the opposite?"

Quiz Your Printer "Ask questions on what's the latest printing technology, and what's the best way to print and bind a brochure."



Left to right: Benjamin Pham, Patricia Evangelista, and Rishi Shourie of Character.

Designers need inspiration to find the right image for a client. To brand Pottery Barn Kids, Character created a classic logo, custom colors, and original icons for use on distinctive packaging and promotional material. The result was a whimsical, modern look that didn't reek of kindergarten kitsch.

ICONS

Inspired by the comfort art of Norman Rockwell, Character designers drew about 19 icons of children at play and in repose. Starting with anywhere from 2 to 20 concepts per icon, Character drew sketches and scanned the art into Adobe Photoshop (\$609, www.adobe.com), cleaned up the stray lines and scratches, and imported the now bitmapped art into Adobe Illustrator (\$399), where the real work began.

The designers painstakingly used Illustrator's pen tool to redraw the scanned drawing, eschewing autotrace



Illustrator's pen tool gave this kid a nose job.

applications like Adobe Streamline (\$129). "[Streamline] didn't feel natural enough, like it was actually drawn," Shourie says. "We wanted the effect that it was more hand done." The detailed drawings consisted of up to 200 Bézier points, which Character then slimmed down to reduce the file size of the final artwork. See "The Kid That Character Built," 17, to see how Character crafted the icons.

COLOR AND TYPE

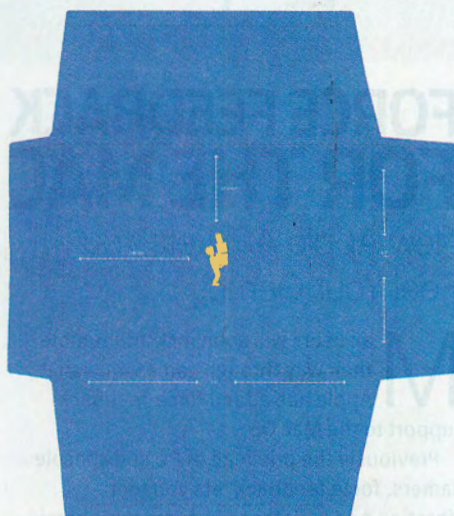
Since Character could find no existing Pantone color to fit its vision, it created two custom blends: Pottery Barn Kids Blue and Pottery Barn Kids Cream. Because the bright primary colors of toy stores would have been an obvious choice, Character avoided it. "We wanted to show them a more sophisticated palette that was a little more timeless," Shourie says. Timeless color begets timeless type, so Character went with a classic Adobe Garamond for the logo.

THE PACKAGE

With icons, colors, and type nailed down, Character built gift tags, envelopes, boxes, and bags in Illustrator, carefully retaining visual consistency among items. "From the smallest to the largest box, we created a system where there are only three specific sizes [of icons] depending on the size and shape of the box," says Benjamin Pham, cofounder of Character. (Patricia Evangelista is the third cofounder.) The files themselves don't look much like the final product, since the pieces are unfolded and uncut (envelope design shown above, left).

PHOTOGRAPH BY MARK MADEO

COURTESY OF CHARACTER



The envelope, please. Character marked this unfolded envelope with fold and cut lines.

MECHANICALS AND GUIDES

When the designers are in San Francisco and the print houses are across the United States and around the world, a lot can go awry along the way. Character minimized the chances for error by sending a guide or mechanical along with the print job that told printers where to cut, where to fold, what colors to use, and whether to overprint (lap) colors or knock them out (replace one color with another).

THE IMPORTANCE OF PAPER

An often-overlooked art, printing and binding can turn run-of-the-mill promo pieces into books worthy of their own coffee table. For example, coated paper has more impact than uncoated paper. Ink sits on top of coated papers, making colors look vibrant. Uncoated paper, on the other hand, is like a sponge. "[Ink] starts to spread and all the dots get bigger. The whole image gets muddy," says Pham. The right fold can create the illusion of bulk. In one brochure for Kohler, Character used a French fold, a sheet printed on one side and partially folded over, and Layflat perfect binding, which allows books that would normally curve at the spine to lie flat.

Pham calls design a muscle, which you need to stretch and challenge to grow stronger. It's the marriage of innovative ideas with quality production that, in this case, builds Character. —Narasu Rebbapragada

THE KID THAT CHARACTER BUILT

A Computer-Drawn Kid Gets a Hand-Drawn Feel



The Pottery Barn Kids icons start with a hand-drawn sketch.



After scanning the art into Photoshop and importing it into Illustrator, Character cofounder Rishi Shourie uses the pen tool to trace over the shape.



Shourie then simplifies the number of Bézier points and turns the white background transparent to create an icon he can use on media of any color.



Character used French folds and Layflat perfect binding to turn a brochure into a book.

NEW STUFF

500GB HARD DRIVE

LaCie, www.lacie.com, \$999

Available: Now

LaCie has announced a 500GB, 5,400-rpm FireWire drive, targeting video and 3D professionals. Under the hood are two Maxtor drives that behave as one device. This hot-swappable drive doesn't need drivers in Mac OS X but does require an external power supply.

LaCie is also offering an \$899 400GB version at a faster 7,200 rpm.



LaCie's 500GB external FireWire drive gives you massive storage.

PHOTOGRAPH COURTESY OF LACIE

61/2 M USB MIDI INTERFACE

Emagic, www.emagic.de, \$299

Available: Now

EMagic recently announced a bus-powered USB MIDI interface with six analog recording channels and two analog playback channels. Plus, the device comes with two connectors for S/PDIF (digital) inputs and outputs or for MIDI inputs and outputs. Two extra USB ports act as a hub for hooking up USB peripherals.

FILM GIMP FOR MAC OS X

www.filmgimp.org, free

Available: Q4 2003

This free, open-source retouching tool, used on movie blockbusters such as *Harry Potter and the Sorcerer's Stone*, is now available for Mac OS X. Use this Photoshop alternative with 16-bit color support to remove dust or make frame-by-frame corrections.



VIRTUAL PC 6.0

Connectix, www.connectix.com,

\$129 to \$249

Available: Now

Connectix revamps the popular PC-emulation software by adding Dock integration for Windows apps, the display of the Windows Start Menu on the Mac desktop, and Desktop Drive Mounting for easier backup. Connectix says Virtual PC 6.0 is 25 percent faster than Virtual PC 5.0, provided you're running Jaguar with a Quartz Extreme-supported graphics card to take advantage of all the enhancements.

COURTESY OF CHARACTER

GAME NEWS



THE SOUNDS OF SEGA

Console Game Music Made on Macs

Game music has graduated from audio accompaniment to aural entertainment. Just ask Sega, whose Wavemaster in-house music studio has composed tunes for hit Sega games like *Sonic The Hedgehog*, *Space Channel 5*, *Jet Set Radio Future*, and *Shinobi*. Surprise, surprise—Wavemaster uses Macs to make its music. We asked President Yukifumi Makino a few questions about how it's done.

Why do you like to use Macs?

I admire that the Mac hardware, design, and OS are not [just] tools. They are entertainment [as well].

Where does Wavemaster get the sounds for Sega games?

We've done almost all of our sound creation in-house, but lately we've had several chances to collaborate with outside artists.

What are some of the challenges in making game music?

When it comes to MIDI, the amount of memory in the console for sound data is small and has to be shared with graphics and program data. Since the console cannot always sample music at rates as high as 16-bit 48KHz [about CD-quality sound], it's challenging [to get] the console to play music with wonderful sound. At the same time, it's interesting and fun work.

Who are your musical influences?

I always try to observe upcoming music from R&B and funk artists.

What's the most innovative soundtrack you've done recently?

The *Space Channel 5* series.

Professor K, from Sega's skate action game *Jet Set Radio Future*, plays tracks made on Macs.

VITAL STATS ON WAVEMASTER

Founded: July 2000

President: Yukifumi Makino

Games with Wavemaster Music: *Panzer Dragoon Orta*, *Jet Set Radio Future*, *Shinobi*, *Sonic The Hedgehog*

Number of Macs at Wavemaster: 35

Preferred Software: eMagic Logic, MOTU Digital Performer, Steinberg Cubase, Bias Peak, TC Works Spark, and Digidesign Pro Tools

Preferred Hardware:

MIDI keyboard, MIDI Sound Generator, 03D and 01V audio mixers, MIDI Express, Unitor8, MIDEX8 MIDI interfaces, Digi001, MOTU 1296, and MOTU 828 audio interfaces; Akai Z8 and S6000 samplers

President Yukifumi Makino of Wavemaster likes the Mac for its tools and entertainment value.



PHOTOGRAPH COURTESY OF SEGA

FORCE FEEDBACK FOR THE MAC

New Apple API Lets You Feel Your Games

Mac users will soon rock and rumble their way through games, now that Apple has added force-feedback support to the Mac OS.

Previously the privilege of PC and console gamers, force feedback lets you feel vibration and resistance in game peripherals such as gamepads and steering wheels, allowing you experience the off-road traction in driving games and the impact of gunfire in shooters.

This gaming sensation is part of a larger technology called *haptics*, found in touch-sensitive medical-training simulators and BMWs. Apple is working with Immersion, a leading developer of haptics, to create a standard OS X API (application program interface) that game developers can use.

The fruits of these early-bird developers are here. Aspyr is adding force feedback to *NASCAR 2002* and *Tony Hawk 3*. MacPlay is adding force feedback to its *F1 Championship Season 2000* driving game.

Of course, you'll need a force-feedback-enabled controller, and for the first time peripherals manufacturers like Logitech, Saitek, and Gravis will bring their force-feedback gamepads, throttles, and driving wheels to the Mac.—NR



Feel the rumble in Aspyr's *NASCAR Racing 2002 Season*.

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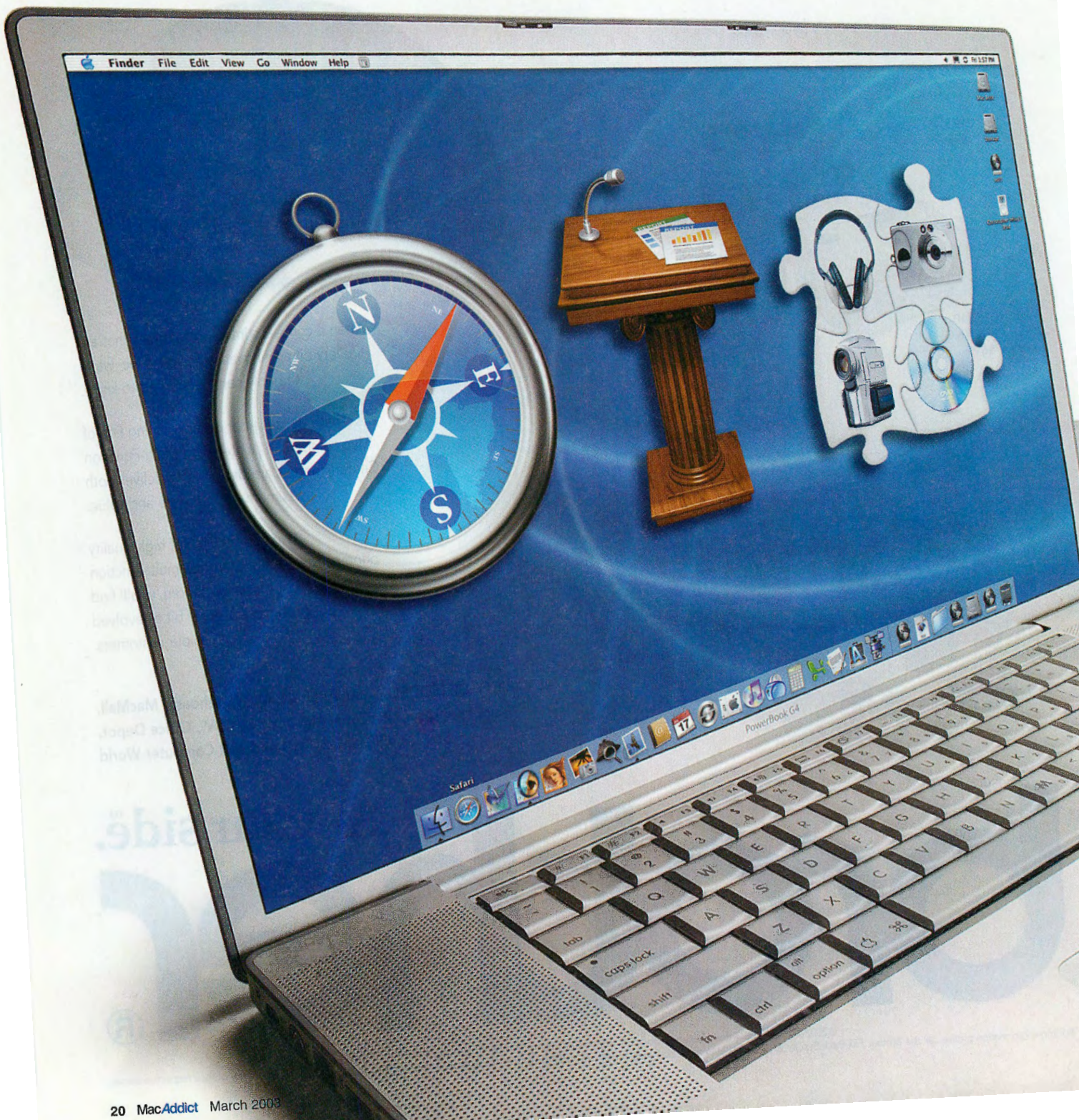
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Freakin' Awesome!

If January's Expo announcements are any indication, 2003 is going to be a very good year indeed.



When Steve Jobs bounded onto the keynote stage and excitedly told the expectant throng that he was going to provide us with two Expos worth of announcements, we assumed he was merely indulging in an innocent bit of exuberant hypemeistering.

We were wrong.

San Francisco's Mac Expo 2003 saw a veritable avalanche of new products from Apple: The familiar digital-hub iApps got updates and became integrated into a suite christened with the unfortunately lifestylin' name of iLife. Final Cut Pro got a little brother. A new browser and presentation package took direct shots at Microsoft's domain. And two new PowerBook G4s appeared:

one, the biggest Apple laptop ever, and the other, the smallest.

Integration and innovation were the dominant themes. For example, iTunes 3 and the new iMovie 3, iPhoto 2, and iDVD 3 now seamlessly share files through similar interfaces, making the whole—iLife—greater than the sum of its parts. The new superslim, supersized PowerBook G4 (built around the same LCD panel as the 17-inch iMac's) is not just the world's first 17-inch laptop, it's also the first with FireWire 800, 54 Mbps AirPort networking based on the new 802.11g protocol, and a backlit keyboard that glows when the lights grow dim.

That was Expo 2003: big stuff, little stuff; fast stuff, faster stuff; expensive stuff, free stuff—all good stuff.



WE'RE NOW OFFICIALLY SICK OF THE LETTER *i*.

Apple has integrated its four main digital-hub apps—iPhoto, iTunes, iMovie, and iDVD—and packaged them together into one cheesily named bundle called iLife. As Jobs said in his keynote address, "We are going to do for digital-media applications what Microsoft Office did for productivity." Only iLife will cost you about \$450 less than Microsoft Office. You can download the latest versions of iTunes, iPhoto, and iMovie for free, or pay a paltry \$49 for all four apps in a box (according to Apple, iDVD is way too big to download, so the company has to sell it on CD). Although we couldn't get our hands on these new apps before press time, we did get a preview of the new and improved iPhoto 2, iMovie 3, and iDVD 3.

iPhoto 2

For those of you (or more likely, your computer-unsavvy friends—or parents) who thought the original iPhoto wasn't easy enough to work with, rejoice in iPhoto 2's idiotproof new tools and integration with the other iApps.

Among the biggest additions to iPhoto 2 are two new photo-retouching tools. If you can click, then you can use these tools. The first tool is the healing...uh, we mean, Retouch brush, which comes close to doing what Photoshop 7's healing brush does. Simply click the Retouch button, and then take the brush to any scratch, stray hair, or preprom pimple, and poof—it's gone! Even simpler is the one-click Enhance tool. Click Enhance, and iPhoto fixes up lighting and exposure problems in your pictures using a bunch of algorithms that do things such as

by the MacAddict staff
photography by Mark Madeo



iPhoto 2 features a newly tweaked interface with all of the Share options now sitting at the bottom.

optimize the white balance.

As with the other new-and-improved iApps, iPhoto gets more incestuous with its brethren. For instance, you can view your iTunes playlists and grab songs to set as background music for your slide shows. Or you can click the iDVD button at the bottom (all of the options that used to be under the Share window now sit at the bottom of iPhoto 2) and bring your slide shows into iDVD. Wanna archive your photos to CD or DVD? Just click the Burn button.

According to Apple, iPhoto 2 has some performance enhancements, including quicker launch times and image resizing—nothing too major. But think of all the precious time you'll save with those two cool new retouching tools.

iMovie 3

The must-have tool of every Mac-based DV camera hobbyist, iMovie pretty much started the consumer craze for desktop-video editing, thanks to its cost (nada), its way-cool features, and its ease of use. While more-serious DV enthusiasts will likely be courting the new Final Cut Express for their movie projects, the average Joe home-video editor can make pro-quality movies with iMovie 3, a superb—and still free—successor to version 2. If you're not interested in fiddling with Bézier motion paths, doing extensive color correction, or mixing complex audio tracks in Final Cut Express, iMovie 3 is your app.

What's different in this upgrade? Plenty. For starters, the app no longer hijacks your entire desktop; instead, the interface stakes its space in a single, resizable window. Though the interface looks about the same as its predecessors, iMovie 3 now supports iPhoto, iTunes, and iDVD in its interface panes, allowing you to add pictures and

music to your video projects and then burn the whole thing to a DVD—complete with DVD chapters, thanks to iMovie's new chapter markers—without ever leaving the app.

If you're a budding Scorsese, iMovie 3 packs some incredible new visual effects, including Aged Film, Flash, Ghost Trails, Lens Flare, Rain, and more, to spice up scenes. You can even sprinkle a trail of fairy dust across your movie or insert a bolt of electricity. Documentarian? Bring in one of your digital photos and apply the new Ken Burns Effect (yep, that's the official name) to create a pan-and-zoom sequence with a still image. You can also tweak colors and adjust exposure to clean up mediocre clips, and you can title your movie using any of the title styles (over 30 are included). The best part: iMovie now lets you preview all effects in real time (G4 recommended).

One of our pet peeves with the old iMovie was the app's weak audio capabilities. No longer. With version 3, you finally have full control of each audio track's volume at any point in the project. What's more, you get an incredible library of over 40 sound effects created by Skywalker Sound's audio guru Gary Rydstrom, including Applause



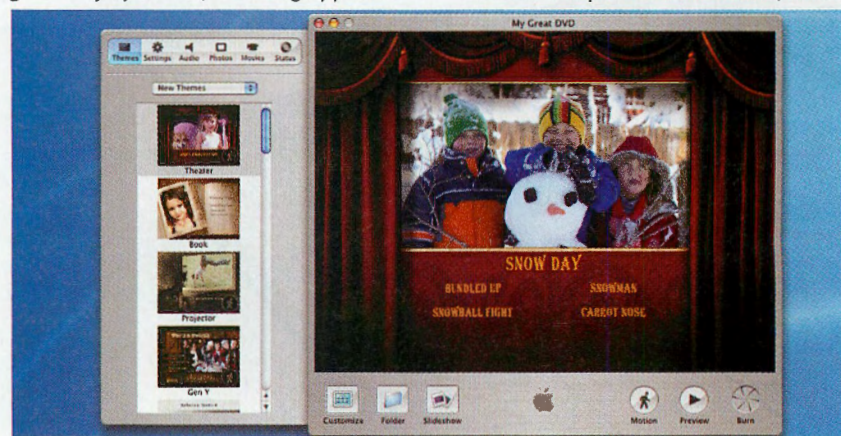
Use iMovie 3 to create cool pan and zoom effects with still images using the Ken Burns Effect.

Big, Background Restaurant, Bang, Electric Sparks, Helicopter, Laugh Track, Thunder Clap, and more. Even if you don't intend on staking a claim in Hollywood, iMovie 3's new features allow you to place your home movies on a superior pedestal.

iDVD 3

Unless you bought a Mac with a SuperDrive installed in it, chances are you've never played around with iDVD, Apple's consumer-level DVD-authoring tool, as Apple never made the app available for download or sold it separately. Now that iDVD 3 is part of the iLife bundle, if you choose to spend the 49 bucks for the boxed version, you can at least hold it in your hot little hands. Of course, you'll never get to play with iDVD unless you have one of Apple's SuperDrives installed (c'mon, Apple, we know you know that third-party DVD-R drive support exists!).

The biggest difference between version 3 and its predecessors is—you guessed it!—iDVD's integration with iPhoto, iTunes, and iMovie. No longer do you need to leave iDVD to add photos from iPhoto, music



It's Ebert and Roeper at the movies! Oh, actually, it's iDVD's new Theater theme.

from iTunes, or movies from iMovie to your DVD—all three cousin apps are available at the push of a button, which makes creating a professional-quality DVD a simple point, click, drag, and drop affair. Also, you no longer have to export your iMovie project to bring it into iDVD—any movie files merely refer back to their iMovie counterparts.

And with its support for iMovie's new menu chapters, iDVD automatically creates the requisite buttons and titles in the main menu, and generates thumbnail images in the scene selection menu based on your project's chapter markers.

iDVD 3 also features 24 new themes, all of which support full-motion video in one form or another. While a few of these themes are a little Hallmark-y, many of them look as good as some of the interfaces featured on current big-budget DVD movies. The new themes include everything from cutting-edge eye candy and pop-art retro styles to

iDVD 3 features 24 new themes, all of which support full-motion video.

classically clean, sporty, cinematic, and fun designs. So in what ways can you display your video clips? Three ways, depending on the theme you choose. The Drop Zone themes let you drop a movie, still image, or slideshow onto a template, which displays your clips as added entertainment (these displays don't link to anything). Some themes allow you to display several full-motion video thumbnails as navigational buttons in the main menu, and other themes can display movies in the menu background. Some themes even include pre-fab—and changeable—background music.

However, if fuss you must, you can customize iDVD themes to satisfy your cinematic endeavors. You can customize button shapes or add your own designs, move buttons around anywhere onscreen, change the fonts and sizes of your titles and text, and import your own music from iTunes.

IS SAFARI REALLY FASTER?

Apple says one of Safari's best features is its zippiness. We tested that claim by comparing Internet Explorer 5.2.2 (IE) and Safari 1.0 Beta load times of some of our editors' favorite Web sites (sad bunch, aren't we?). Our results showed that Safari is indeed faster if you want to read about deep tech, look at porn, or find the meaning of *scyphozoan*, but not if you want to check out home decorating tips from *Trading Spaces*.

Safari

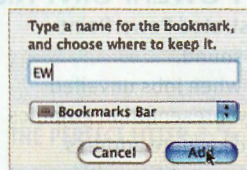


THINK YOU DON'T NEED ANOTHER BROWSER? THINK AGAIN.

Pretty much *anyone* who has used the latest version of Internet Explorer (version 5.2.2) has grumbled once or twice (or 300 times) about its sluggish load times and other strange behavior (blank-page problems, anyone?). So leave it to Apple to release a browser of its own, called Safari.

Apple's first goal was to make Safari the fastest browser on the Mac. They did that by turning to the KHTML open-source rendering engine, which powers the browser Konqueror for the K Desktop Environment (aka, it's a Unix thing). Judging from our initial time tests (see "Is Safari Really Faster?" below), it appears that Apple has delivered on speed.

Apple's other goal was to innovate. And it certainly did that. The first thing to do when you download Safari is to go to the Safari menu and select Block Pop-Up Windows. This feature in itself makes Safari worth its weight in download time. Safari also has integrated Google search, which allows you to google any subject from whatever window you're in. Once you're deep in the throes of your search, click the little orange snapback button in the Google search box to go back to your search results page (there's also a snapback button in the main URL box to jump back to a site's home page). Click the triangle in the search box to get a drop-down list of all recent searches.

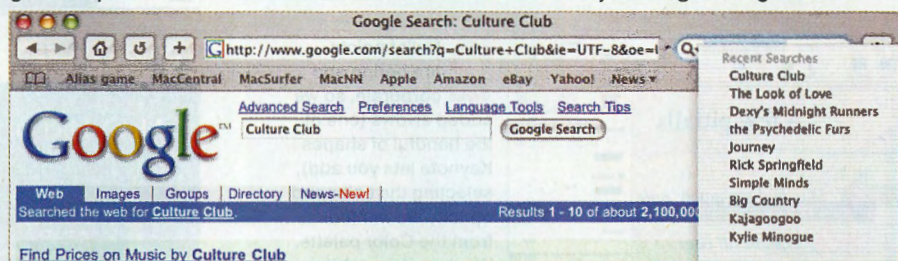


Rename your bookmarks to cure your overly-long-and-stupidly-named-Web-site blues.

Also smart is the Bookmarks manager, which allows you to rename, for example, the unwieldy *Entertainment Weekly's EW.com* to just *EW* so you can store it in your Bookmarks Bar without taking up too much space. One interesting feature is the presence of a Rendezvous Bookmarks folder. Rendezvous is Apple's technology for automatic discovery of other smart devices on your network. Safari uses Rendezvous to find any Web addresses on your local network (for instance, Rendezvous-enabled printers or routers) and stores that information in your bookmarks. This feature probably won't make a huge difference to you now, but it may be killer in the future.

Finally, if you're grumbling about the lack of a Home button or Status Bar, go to the View menu and turn on those options.

Safari is still in beta and Apple is mum on when it will release a final version or whether it will charge for it. In the meantime, be a good beta-testing citizen and report Web sites that don't play well with Safari by clicking the bug icon.



Safari lets you see a list of your recent Google searches.

Editor	Web site	Web URL	Safari Load Time*	IE Load Time*
Rik	Ars Technica	www.arstechnica.com	3.04	3.63
Cathy	Trading Spaces	www.tlc.discovery.com/fansites/tradingspaces/tradingspaces.html	6.06	5.11
Narasu	The Examiner Scoop!	www.examiner.com/scoop	3.36	5.86
Kris	Rathergood.com	www.rathergood.com/independent_woman	2.78	4.01
Jenifer	Merriam-Webster	www.m-w.com	2.36	3.44
Niko	The, uh, White House	www.whitehouse.com	2.5	2.68
Chris	The Onion	www.theonion.com	4.05	5.35
Leslie	DetroitYES!	http://detroityes.com/index.html	3.08	3.14

*Time in seconds. We averaged three tests and stopped if a site waited for an ad to load. We tested on an 800MHz iMac G4 running Mac OS 10.2.3.

Keynote



APPLE'S NEW POWERPOINT KILLER.

The cry of the frustrated PowerPoint user is a mighty sound.

The crowd roared when Jobs unveiled Keynote, Apple's new presentation graphics software, at his Expo keynote address. Essentially in direct competition with Microsoft's PowerPoint, Keynote offers great graphics, ease of use, stability, and integration with iLife apps such as iTunes and iPhoto.

Unlike the one-window iTunes and iPhoto apps, however, Keynote's interface resembles a more-traditional graphics application, with separate panels for the various controlling object attributes. The Inspector panel lets you format charts, tables, fonts, master pages,

and even movies that you can add to your presentation.

Where Keynote shines is in the host of graphic nuances it allows you to add to your presentation. Keynote comes with 12 artistically rendered background themes, such as Parchment, Blackboard, and Crayon Line, as well as an Image Library containing flags, photo-realistic objects (like hard currency and stop signs), and photographic backgrounds (like the currency assemblage and the open road) that blows away the flat, one-dimensional clip art that comes with, oh, let's say PowerPoint. You can take any master-page template and customize it by adding elements such as your company logo.

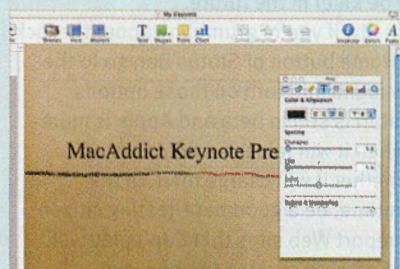
Keynote also supports antialiased text, opacity, and alpha channels.

Of course, an Apple app wouldn't be an Apple app unless it worked with all the other Apple apps, and here, too, Keynote shines. You can add photos from your iPhoto library, music from your iTunes library, and QuickTime movies to your presentations.

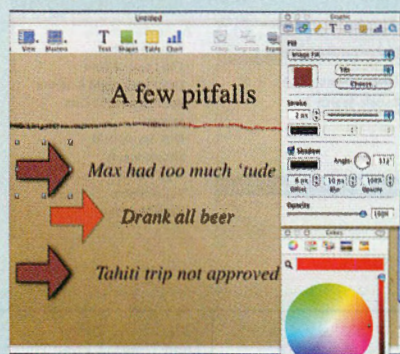
In Keynote, viewing your work is half the fun; it lets you add a handful of 3D transitions between slides—thanks to the magic of OpenGL—as well as a bunch of 2D transitions that resemble those familiar PowerPoint effects. If you're sending your presentation to non-Keynote users, you can export it to QuickTime, PowerPoint, and PDF formats.

THE MAKING OF A MACADDICT KEYNOTE

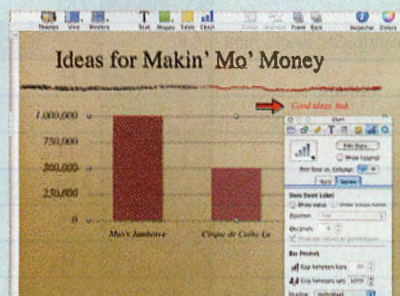
To show you how Keynote works, we put together a Jobsian keynote of our own.



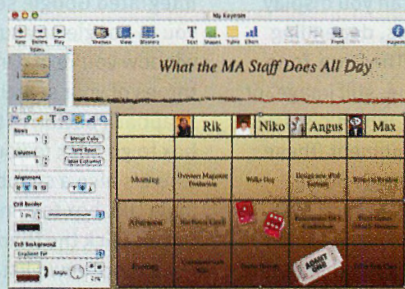
1 We started our MacAddict Keynote presentation with the refined yet playful Crayon Line theme.



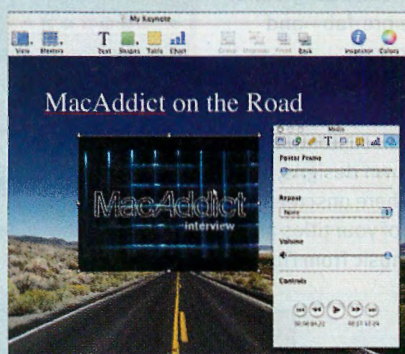
2 Bullet points are boring and corporate, so we added arrows (one of the handful of shapes Keynote lets you add), selecting the color and opacity we wanted from the Color palette. We threw in a subtle drop shadow for good measure.



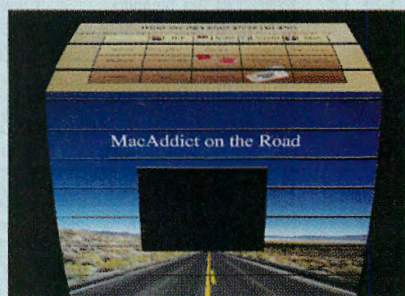
3 It's not a bona fide presentation without a graph, so we added a column chart (you can choose line, area, and pie charts as well). It's easy to change data and titles in the Edit Data dialog.



4 Ditto on the table. Here, we added a gradient background and some of Keynote's included graphics as well as some of our own images. Now that's a page with punch.



5 Now for a little QuickTime. We dropped in a MacAddict movie on top of one of Keynote's provided photographic backgrounds. We'd tell you how little time it took us to throw this slide together, but then you'd think we don't do any work around here.



6 Here's the fun part. We added the 3D Cube transition between slides. Though you can't hear it, we also dragged MP3 files from our iTunes library onto each slide so we could party to our presentation. Yeow!

Final Cut Express

FINAL CUT COMES TO THE MASSES.

Nearly all of the features for less than one-third of the price? If you've outgrown iMovie but refuse to subsist on Top Ramen or give up your cable TV habits just to afford Final Cut Pro, Final Cut Express offers an almost-identical interface and almost-equal feature set—and it will cost you a reasonable \$299. This was one Apple announcement that surely ticked off a few recent Final Cut Pro buyers, while the rest of us did the happy dance.

Final Cut Express does almost everything its Pro bro can do except handle the überpro stuff, like advanced keyframing, offline-online workflow, support for every professional video format and Edit Decision Lists, 24-fps editing, and other hoity-toity winky-dinks that most editors outside the industry wouldn't use anyway. The app supports DV format only, including MiniDV cameras and DVCAM decks. Unlike iMovie (which might seem like a Fisher-Price toy in comparison), Final Cut Express lets you composite up to 99 tracks of video and audio, gain precise control over video and audio edits, create motion graphics and animation, mix multiple audio tracks, import multilayered Photoshop files, record synced

overdubs, and correct color and exposure inconsistencies to make footage seamless.

To pretty up your projects, the app comes loaded with more than 200 transitions, filters, and effects, including dissolves, wipes, mattes, borders, and keying effects. It ships with Boris Calligraphy to create eye-catching titles, and it features sound-mixing

controls to pan audio tracks, and sound filters such as a noise gate, EQ, reverb, and compression. When you're finished, Express lets you export your movie back to your camera or into QuickTime (including MPEG-4 format), or import your project into iDVD or DVD Studio Pro. We can feel Adobe shaking in its shoes.



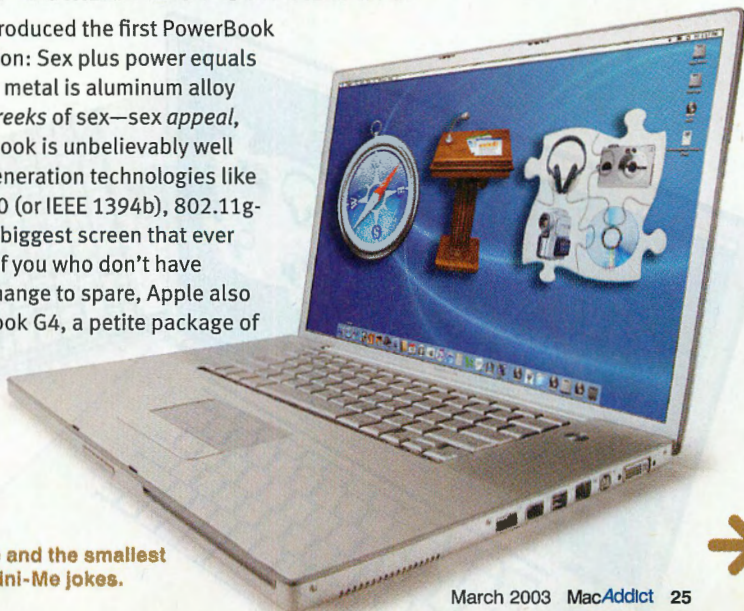
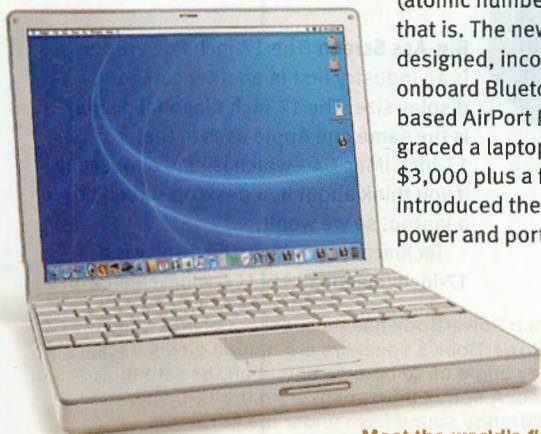
Look familiar? It's Final Cut Pro without the super fancy features.

SCREENSHOT COURTESY OF APPLE COMPUTER

Big & Lil' PowerBooks

YOU KNOW WHAT THEY SAY ABOUT THE SIZE OF SOMEONE'S POWERBOOK.

Two years ago, Steve Jobs introduced the first PowerBook G4 with the following equation: Sex plus power equals Titanium. This year, the hot new metal is aluminum alloy (atomic number 13), and it just *reeks* of sex—sex *appeal*, that is. The new 17-inch PowerBook is unbelievably well designed, incorporating next-generation technologies like onboard Bluetooth, FireWire 800 (or IEEE 1394b), 802.11g-based AirPort Extreme, and the biggest screen that ever graced a laptop. And for those of you who don't have \$3,000 plus a few hundred in change to spare, Apple also introduced the 12-inch PowerBook G4, a petite package of power and portability.



Meet the world's first 17-inch laptop and the smallest full-featured laptop—hey, and no Mini-Me jokes.



17-Inch PowerBook

From across the room, the new 17-inch PowerBook G4 looks a lot like the old 15-inch Titanium model, but once you get close enough to touch it, you see the subtly different color tone of its new aluminum-alloy hull. (That aluminum alloy is anodized, by the way, so the finish shouldn't scratch or wear off nearly as easily as the Titanium PowerBook's paint does.) Then you pick it up. At 6.4 pounds, the new 17-incher feels as good as it looks. We thought the original TiBook was pretty smooth, but the new PowerBook casing is *completely* smooth—baby's-butt smooth—and there's nary a latch, catch, or knob protruding from the thing. Credit this in part to the redesigned hinge, which looks and works suspiciously like the current iBook's hinge.

Plentiful Ports Hey, so if the PowerBook can open almost like a book (Apple peeps tell us it opens up to 135 degrees), how do you access the ports? Well, all the new PowerBooks' connection ports reside on its sides. On the right side are ports for USB 1.1, FireWire 400, FireWire 800 (see, "Faster FireWire," p27), Gigabit Ethernet, Composite and S-Video out, and DVI out (see photo this page, top right). On the opposite side are two audio minijacks (one in and one out), a Type 2 PCMCIA slot, another USB 1.1 port, a 56-Kbps v.92 modem, AC power, and a Kensington cable-lock slot.

The Perfect Keyboard When you first get your hands on the 17-inch PowerBook, dim the lights in the room to reveal the real genius of this device: the glowing keyboard. Fiber optic strands under the

keyboard cast a bluish glow between the keys. Even cooler, the characters on the keys are painted and then laser-etched, so they appear black in daylight but glow when the backlighting comes on. And how do the lights come on? Ambient light sensors (located under the speaker grilles) monitor the PowerBook's surroundings and activate the keyboard backlighting when the lights

go down. The light sensors also tone down the LCD screen's backlighting when the room dims—if you want. These light sensitivity tricks are exclusive to the 17-inch PowerBook, and if you're torn between the two new models and money's no object, the light-up keyboard may sway you.

Unlike keyboards on other recent Apple 'Books, this one is securely and (more or less) permanently affixed to the chassis, so it's rock solid and doesn't flex, no matter how hard you tickle the metallic keys. Apple moved all user-upgrade access to the bottom of the case.

Big-Ass Screen The 17-inch PowerBook is an industry first in another category: display size. The 17-inch diagonal display is the same one Apple uses in the 17-inch iMac G4—which is kind of obscure if you think about it, a desktop screen on a laptop, so we won't.

Technically speaking, the display is a 17-inch (diagonal) TFT LCD widescreen with a

The 17-inch PowerBook has its speakers on top while the 12-inch PowerBook's speakers are hidden on the back, where they angle up to bounce sound off the screen, toward you. A bonus third speaker on the 12-incher spews midrange sound from under the keyboard.



Check out the two different FireWire ports on the 17-inch PowerBook. One should look familiar. The other one (to its right) moves data at an impressive 800 Mbps.



In another stroke of genius, Apple put one USB port on each side of the 17-inch PowerBook.



On one side of the little 12-inch guy are all your ports (sorry, no FireWire 800).



On the other side of the 12-inch is a Combo drive that you can upgrade to a SuperDrive.



THE DETAILS

For all their similarities, the littlest PowerBook lacks some of the biggest one's charms (see below). By the way, both models come with 56-Kbps v.92 modem, two USB ports, 1/8-inch minijack line I/O, dual-display mode support, built-in Bluetooth, and the new iLife software (see p21).

Model	17-Inch PowerBook	12-inch PowerBook
Base price	\$3,299	\$1,799 (\$1,999 with SuperDrive)
Processor	1GHz G4 with 1MB L3 cache	867MHz G4 with 256K L2 cache
System bus speed	167MHz	133MHz
RAM	512MB 333MHz PC2700 DDR SDRAM	256MB 266MHz PC2100 DDR SDRAM
Graphics	nVidia GeForce4 440 Go with 64MB of DDR SDRAM	nVidia GeForce4 420 Go with 32MB of DDR SDRAM
Dimensions in inches (height by width by depth)	1.0 by 15.4 by 10.2	1.18 by 10.9 by 8.6
Weight in pounds	6.8	4.6
Screen resolution in pixels	1,440 by 900	1,024 by 768
AirPort	AirPort Extreme card included	AirPort Extreme ready; card costs \$99
Ethernet	Gigabit	10/100Base-T
Optical Drive	Slot-loading SuperDrive	Slot-loading Combo drive (upgradable to SuperDrive)
Hard drive	60GB Ultra ATA/100	40GB Ultra ATA/100
FireWire	One FireWire 400 and one FireWire 800	One FireWire 400
PCMCIA slot	Yes	No
Video out	S-Video, Composite, and DVI out	S-Video, Composite, and VGA out
Claimed battery life	4.5 hours	5 hours
Keyboard	Backlit keys, solid construction	Same great board, but no backlighting

pixel resolution of 1,440 by 900—that's wide enough to display two full pages side by side.


Under the Hood Apple also overhauled the PowerBook's innards; besides Bluetooth, FireWire 800, and 802.11g-based AirPort Extreme (see "Extreme AirPort," right), these 'Books sport a portable version of the system architecture introduced with the Xserve: 333MHz PC2700 DDR SDRAM—512MB of it, with a 1GB maximum with current SO DIMMs; a 167MHz system bus; a 1MB Level 3 Cache; a 60GB Ultra ATA/100 hard drive; a front-slot-loading SuperDrive; and nVidia's GeForce4 440 Go graphics chip with a 128-bit memory interface and 64MB of DDR SDRAM video memory.

12-Inch PowerBook

For all of you mobile pros who want a G4 laptop but find the 15-inch Titanium too big, too heavy, too expensive, or just too precious to punish on the road, this is the laptop for

you. The new 12-incher is even smaller than a wee iBook, and you can build-to-order one with a SuperDrive for about \$2,000.

Like its big brother, the 12-inch PowerBook G4 has an aluminum-alloy shell, side ports, and a righteous keyboard (though this one doesn't light up, it's full-size and solidly built). It uses the next-generation system architecture, running PC2100 (266MHz) DDR SDRAM and a 133MHz system bus (like the Dual 867MHz Power Mac G4 tower). The little dynamo comes preloaded with 256MB of RAM—128MB on the motherboard and a 128MB DIMM that you can replace with a 512MB module, for a current total RAM potential of 640MB. It also houses an nVidia GeForce4 420 Go graphics chip with 64-bit memory interface and 32MB DDR video memory. And like the big dog, the 12-inch PowerBook puppy uses an Ultra ATA/100 hard drive (40GB), has built-in Bluetooth, and integrates an AirPort antenna into each side of the lid. This model doesn't include an AirPort Extreme card (\$99 at the Apple Store) but has a trap door on the underside that's ready for one when you are. ■

 The MacAddict staff is very tired from running around Mac Expo and would like to invite their loyal readers to chip in and buy them all new PowerBooks so they can offer even better show coverage next time around.

FASTER FIREWIRE

When Jobs announced the 17-inch PowerBook, he also introduced a faster-generation FireWire. Pushing data at a maximum of 800 Mbps, FireWire 800 is theoretically twice as fast as the old FireWire (now designated FireWire 400) that we know and love. For the math challenged, 800 Mbps breaks down to a cool 100 MBps, although protocol overhead will trim that rate in the real world. Of course, as soon as Steve's announcement hit, hard drive vendors inundated the Expo floor with news of soon-to-be-released FireWire 800 drives (see "The Best of Mac Expo," p12).

With faster FireWire comes a different type of port (9-pin as opposed to 6-pin), which requires a different cable. So does that render your FireWire 800 port useless unless you buy a FireWire 800 drive? Au contraire, Pierre—Apple includes an adapter for plugging old-style FireWire 400 devices into the FireWire 800 port.

EXTREME AIRPORT

Ever notice how we knock USB for its paltry 11 Mbps speed—all the while singing the praises of AirPort wireless networking, which tops out at the same theoretical 11 Mbps? Well, get over that: Apple has raised the bar again. Based on the emerging 802.11g standard, AirPort Extreme's top speed is 54 Mbps, and it's completely backward-compatible with the 802.11b standard, so AirPort Extreme plays nice with your old AirPort cards and Base Stations, and vice versa. In true Apple style, the new AirPort Extreme Base Station is cheaper than its predecessor (\$199, previously \$299), and supports up to 50 users, plus it adds a USB port for printer sharing. If you want to go beyond extreme, the AirPort Extreme Base Station with modem and antennae port costs \$249 and adds a 56-Kbps modem as well as a jack for optional external antennae that can greatly increase AirPort's range (which you'll probably want since AirPort Extreme's range tops out at 50 feet). In fact, Dr. Bott makes two such antennae (see "The Best of Mac Expo," p12). The only downside is that while Extreme supports 802.11b AirPort (at 11 Mbps), we can't retrofit our old 'Books for AirPort Extreme's faster speeds.



AirPort Extreme is extremely fast—almost five times faster than yesterday's AirPort.



Printer Bonanza

Stuck in printer-shopping hell?
MacAddict tests and rates 18
printers so you don't have to.

by KRISTINA DE NIKE
photography by MARK MADEO

Remember the days when inkjets produced nasty-looking color images? Or when you had to sell your firstborn child to buy a laser printer? Well, those days are long gone. With inkjets getting cheaper and better, digital photography spawning a new generation of killer photo printers, and more and more laser printers becoming affordable for those of us in the lower tax bracket, we are indeed in the midst of a printer revolution!

OK, so maybe you're not as excited as we are. But we're willing to bet that no matter what you do—whether you're an accountant or an artist—you need a reliable printer. With the ever-increasing selection of printers out there, options have become more plentiful—and more perplexing. Do you go for inkjet or laser? Four-color inkjet or six—or even seven—colors? What to do?

Well, four-color inkjets are great for those who print a little of everything, from short documents to images. If you're heavy into the digital photography scene and you don't print too many text documents, photo inkjet printers are your answer. For wordsmiths and those of you printing 100-page term papers or professional-looking resumes, nothing beats a laser printer. However, don't count on being able to print nice images on a black-and-white laser.

So now that you have some idea of what *kind* of printer to buy, you need to decide which model is worthy of your money. Read on for some insight.

Color Inkjets

Inkjet printers both you and your bank account can appreciate

If you're on a budget, there's no better deal than a color inkjet printer. They're a perfect choice for people who print both text and images, and you can get good ones for less than \$100—the cost of just two months of digital cable (without HBO, that is). Now *that's* a deal.

Of course, there are pricier varieties as well, and originally we planned on skipping inkjets that cost less than \$100, figuring the more expensive printers would far exceed them in quality. But then, just for fun (we're geeks, remember?), we did some trial prints on some of these \$80 to \$100 babies and found they didn't differ as much as we expected from the costlier (around \$150) printers. So we decided to kill a few more trees and review both sets of inkjets.

We're glad we did (review more printers, not kill more trees, that is), because both sets impressed us. Overall, color inkjets offer great image quality, especially for the price, and generally acceptable text. So what do you get at the \$150 level over the sub-\$100 printers? For the most part, higher dpi (dots per inch) and/or faster ppm (pages per minute) ratings. However, these higher-end features didn't always translate into a

noticeable difference in our tests. The more expensive printers were only slightly faster and their prints didn't necessarily look better.

Quality and Speed

In terms of text quality, output from the printers fell into two groups: OK and fuzzy. The OK group included the Hewlett-Packard deskjet printers, the Lexmark Z45se Color Jetprinter, and the Canon i550 Color Bubble Jet Printer. The darker, blue-black text of the HP printers was easy on the eyes, and the Lexmark Z45se offered text that was lighter but sharp. The other four printers, especially the Epson Stylus C62, had text with fuzzy edges, which we found hard to read in smaller type, particularly under 10 points.

In draft mode, the only document that looked downright bad came from the Canon i320. The light-gray text, while still readable, would make tired eyes very unhappy. The rest of the printers put out fuzzy but adequately dark text at their highest speed.

The inkjet printers all dawdled about the same amount of time when it came to printing our test 20-page Word document: roughly between 2 and 4 minutes. Images were a different story. The two Canon

HOW WE TESTED

We did our speed tests using a 20-page Word document printed at the printers' lowest-quality, highest-speed settings. We timed the job from the moment we clicked Print until the last page dropped (known in the testing trade as *click to clunk*—seriously). The published scores are the average of three trials.

To judge text quality, we printed a single page of text at the printers' highest-quality settings. If we saw a big difference between the fastest print and the highest-quality one, we noted that.

We used two images for our photo-image tests. For paper, we used whatever media the company recommended as its highest-quality paper for the specific printer model; for comparison, we also printed the images on plain paper. In the comparison charts (see pages 30, 32, and 34), we rated image quality and text quality on a 3-tier scale: poor, acceptable, or good. We also gave each printer a final rating based on MacAddict's five-wiget rating system (see Reviews, p45, for rating descriptions).

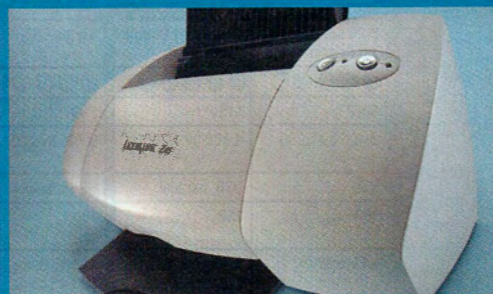
Color Inkjets



HEWLETT-PACKARD DESKJET 5550
Nice, dark, brooding text. OK, not brooding.



HEWLETT-PACKARD DESKJET 3820
OK images, good text, great price. Any questions?



LEXMARK Z45SE COLOR JETPRINTER
When printing images, this printer's a tortoise (that didn't win).



CANON i550 COLOR BUBBLE JET PRINTER
The golden child of the eight four-color inkjets we reviewed.

Color Inkjets
Continued



EPSON STYLUS C82
Double-sided printing, but only in Classic Mac OS. Why?



EPSON STYLUS C62
Fuzzy text but pleasing pictures. Can't have everything, can you?

printers were able to print a full 8-by-10-inch image in less than 3 minutes. The Lexmark Z45se took a laborious 27 minutes. The rest of the printers fell in around 10 minutes.

At 27 minutes, the Z45se must create a mighty fine print, right? Not quite. Sadly, the time a printer spent laboring had no correlation to the quality of the image. Overall we liked the level of detail and balanced color of the Canon images, while the Lexmark ones were a little dark with too much contrast. On plain paper all of the printers did a credible job of printing a color image. Prints from the two Lexmark devices were noticeably gray but not unusable.

Mac OS X Support

If you've been following Mac OS X since its release, you know that it doesn't always play nicely with your hardware. While all of these printers work with OS X, some issues still come up.

For one, when printing from OS X we often felt like second-class citizens. For instance, we had to download OS X drivers for the Canon i320 and i550, and neither the manual nor Canon's Web site offered any instructions. The HP deskjets offered nothing in their

start guides or manuals about the Mac (not even for our ol' pal OS 9). The CD had out-of-date drivers, but we were able to download the correct ones from the HP site.*

With the Lexmark Z45se, we downloaded the latest drivers from the Web site but found the OS X instructions in the manual. Lexmark was much more up-to-date with the Z65, which had instructions on a start sheet for OS X and a nice Mac-friendly manual. We'd like to applaud Epson—both of its printers came with the correct drivers and with instructions in their manuals.

Aside from the fact that you *need* to download the OS X drivers for most of these printers, you probably *want* to check for the latest drivers anyway. Some of the printers' features still don't work with OS X, and a future driver may solve the problem. For instance, double-sided printing is available on the Epson Stylus C82, but only in OS 9, not natively in OS X. Let's hope the company fixes that. Soon.

Extras

Three of the devices—the HP deskjet 5550 and the Lexmark Z65 and Z45se—make you choose a cartridge combination for printing: either black

COLOR INKJETS COMPARED

Company	Canon		Epson		Hewlett-Packard		Lexmark	
Contact	800-652-2666, www.usa.canon.com		800-463-7766, www.epson.com		888-999-4747, www.hpshopping.com		800-539-6275, www.lexmark.com	
Printer	i320 Color Bubble Jet Printer	i550 Color Bubble Jet Printer	Stylus C62	Stylus C82	deskjet 3820	deskjet 5550	Z45se Color Jetprinter	Z65 Color Jetprinter
Rating	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
Price	\$80**	\$150**	\$99***	\$149	\$100	\$150	\$90	\$150
Maximum Resolution (dpi)	2,400 by 1,200	4,800 by 1,200	5,760 by 720	5,760 by 1,440	2,400 by 1,200	1,200 by 1,200	4,800 by 1,200	4,800 by 1,200
Ports	USB	USB, parallel	USB, parallel	USB, parallel	USB, parallel	USB, parallel	USB	USB
Paper Capacity (pages)*	100	150	100	150	100	100	100	250
Ink Cartridge Price	\$8 black, \$19 color	\$14 black; \$12 cyan, magenta, or yellow	\$28.45 black, \$28.45 color	\$31.35 black; \$11.40 cyan, magenta, or yellow	\$27 black, \$34 color	\$20 black, \$35 color	\$32 black, \$38 color	\$30 black, \$35 color
Estimated Pages per Cartridge*	300 black, 170 color	695 black, 460 color	600 black, 300 color	1,240 black, 420 color	495 black, 450 color	450 black, 400 color	600 black, 450 color	600 black, 450 color
Image Quality	good	good	acceptable	acceptable	acceptable	acceptable	poor	poor
Text Quality	poor	acceptable	poor	poor	good	good	good	poor
Rated Speed (ppm)*	10	18	14	22	12	17	15	21
Tested Speed (ppm)	5	8	5	6	7	6	7	8
Included Software	ImageBrowser, PhotoStitch	ImageBrowser, PhotoStitch	FilmFactory	FilmFactory	None	None	None	None
OS Compatibility	OS 8.6 or later	OS 8.6 or later	OS 8.5.1 or later	OS 8.5.1 or later	OS 8 or later	OS 8 or later	OS 8.6 or later	OS 8.6 or later
Comments	Photos have nice detail and aren't too dark.	Photos have nice detail and aren't too dark; fast print speeds.	Photos reddish and saturated but pleasing; loud when printing.	Recommended matte paper has less kick than glossy paper; loud when printing.	Dark, legible text; photos slightly washed out in light areas, murky in dark areas.	Dark, legible text; photos marred by blotchy skin tones and lack of detail in dark areas.	Images dark with too much contrast; took over 20 minutes to print photo.	Images dark with too much contrast; largest paper capacity; quick text printing.

*According to vendor.

**\$30 rebate available until February 28, 2003.

***\$20 rebate indefinitely.

and regular color, or photo color and regular color. If you frequently do both text and image printing, switching cartridges in and out gets pretty annoying. We tried using the photo cartridge in the deskjet 5550, but we actually preferred the photo-image output of the black and regular color cartridges.

Despite our lack of enthusiasm for the Lexmark Z65's text and image quality, it does have a few things going for it. It has two built-in trays, giving you a total capacity of 250 pages—substantially more than the other color inkjets here and enough for that book you plan on writing someday. It also offers the best print speed, although our unit was a tad overzealous—it shot printed pages out so forcefully that they skipped the paper tray and landed on the floor. Lexmark says this must have been a

problem with our particular printer, but you might want to duck and cover just in case.

Even low-cost printers are getting in on the archival ink party. Epson claims that with its specialty paper and pigment-based inks, the Epson C82 will give you prints that last for up to 80 years. Canon claims a 25-year life for prints from the i320 and i550 when you use the company's regular ink and glossy paper.

Bottom Line

Both Canon printers produced excellent-quality photo images, and the two HP printers offer the best text. Overall, the Canon and HP printers give you the best combination of image and text quality, although at these bargain-basement prices worthy of Crazy Eddie, you almost can't go wrong.

Photo Inkjets

Printers to make all those vacation photos last forever

Photo inkjets do a fabulous job of creating images that could have come from your local photo developer. Unfortunately, they are still relatively expensive and, unlike the cheaper color inkjets, they aren't good for much more than image printing. But they do print some really pretty pictures.

We checked out two printers each from Canon, Epson, and Hewlett-Packard—all six-color printers except the HP photosmart 7550, which sneaks in an extra color cartridge for seven-color prints (the color and photo-color cartridges have three colors each; a black cartridge provides the seventh color).

All of the printers we looked at produced nice, similar-looking pictures. The main difference between the models lies in the options they offer for hooking up a camera. We at MacAddict are all tinkerers, organization freaks, and loyal Mac users rolled into one, so we think the best way to deal with images is to download them to your Mac, edit and categorize them, and then print them

out. If you can see yourself running to the printer and downloading an image from your camera without even starting up your Mac, then it might be worth the extra money to get a printer with a USB port on the front or the appropriate media reader (see "Photo Inkjets Compared," p32, to identify which printers have these features).

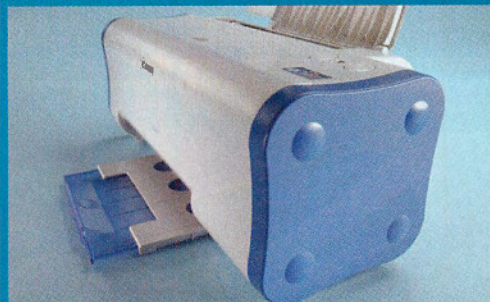
Images

Our three-person jury was split on image quality. Two of us preferred the less-saturated Canon prints, while one of us preferred the darker, warmer flesh tones of the HP images. The Epson printers were also solid, featuring images with a slight yellow cast but good detail in dark areas. The moral is that all of these printers do a good job of printing photos, and it comes down to a matter of personal taste. Plus, with any of these printers, a small amount of touching up in Photoshop should get you exactly what you want.

The Canon printers were the Carl Lewises of the bunch, both finishing a page in less than 3 minutes. The

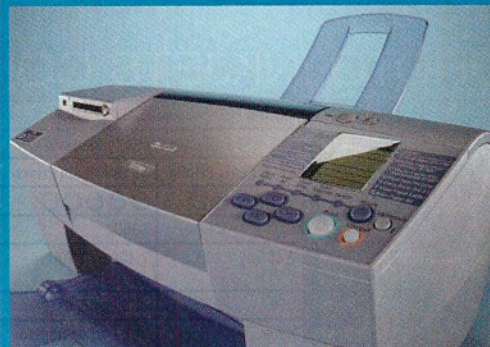


LEXMARK Z65 COLOR JETPRINTER
Mirror, mirror on the wall, who's got the most paper capacity of all?

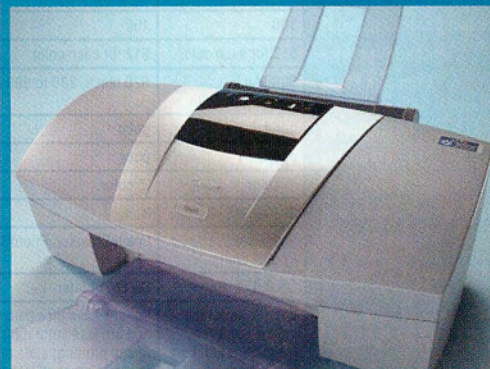


CANON i320 COLOR BUBBLE JET PRINTER
It's so cute! And cheap! But its draft-mode text is too light!

Photo Inkjets



CANON S830D PHOTO PRINTER
Nice images, and hella direct printing options.



CANON S820 PHOTO PRINTER
Images print quickly—and they look and taste great too.

Photo Inkjets Continued



HEWLETT-PACKARD PHOTOSMART 7550
Smart-looking text and photos—it ain't the photosmart for nothin'.



HEWLETT-PACKARD PHOTOSMART 7350
Good price, good text, good images. It's all good.

Epson printers fell in the middle of the pack at around 10 minutes, and the two HPs were the unfit, out-of-breath schlubs at the rear, taking over 20 minutes.

All of the photo inkjets produced nice-looking photo images on plain paper, although the Epson and Canon printers lost a little detail in the dark areas of our test photo.

Text

If you need to print out your 100-page business plan and rush it to a meeting within the next half hour, don't try it on one of these photo printers—you won't make it in time.

Although the HP printers were the fastest at draft-mode text printing (20 pages in about 3 1/2 minutes), the photosmart 7350 was also the slowest at printing high-quality text. It took about 2 1/2 minutes for a single page, compared to 1 1/2 for the rest of the printers. The Canon printers were twice as slow as the HP models in draft mode, and the Epsons were even slower. The draft-quality text printing from all the photo printers was predictably fuzzy, and Canon's quickie text looked particularly faint.

In terms of quality, the HP printers were by far the best at reproducing text. They're a good choice if you plan on printing images with text labels. However, the photosmart 7350 forces you to choose between using a black cartridge or a photo-color cartridge in the second ink holder. The photosmart 7550, on the other hand, can hold black, color, and photo-color cartridges, which means the printer can use all of the cartridges at the same time to print.

Mac OS X

We have a few pieces of advice when it comes to OS X. First, always hit up the vendor's Web site and download the latest drivers. Neither the Canon nor the HP printers come with OS X drivers. When we got to the Canon site, we found the correct drivers and a thorough set of directions for OS X setup.

Our other piece of advice is to check the Web site often for OS X updates, particularly if your printer has features that aren't working with OS X yet. For instance, the Epson printers come with an adapter for holding a roll of paper, but annoyingly, you can't use this feature natively in OS X yet.

PHOTO INKJETS COMPARED

Company	Canon		Epson		Hewlett-Packard	
Contact	800-652-2666, www.usa.canon.com		800-463-7766, www.epson.com		888-999-4747, www.hpshopping.com	
Printer	S820 Photo Printer	S830D Photo Printer	Stylus Photo 825	Stylus Photo 960	photosmart 7350	photosmart 7550
Rating	●●●●●		●●●●●		●●●●●	
Price	\$200	\$300	\$179	\$349	\$200	\$300
Maximum Resolution (dpi)	2,400 by 1,200	2,400 by 1,200	5,760 by 720	2,880 by 1,440	4,800 by 1,200	4,800 by 1,200
Ports	USB	USB, parallel	USB	USB, parallel	USB	USB
Direct Printing Options	None	USB port on front for downloading images from camera; slot for reading camera media; comes with CompactFlash adapter; SmartMedia adapter available	PCMCIA slot; comes with multcard adapter for Secure Digital, SmartMedia, MultiMedia Card, CompactFlash Type I, and Sony Memory Stick; CompactFlash Type II and IBM Microdrive adapter available	None	USB on front; slot to read CompactFlash, Microdrive, MultiMedia Card, Secure Digital, Memory Stick, and SmartMedia	USB on front; slot to read CompactFlash, Microdrive, MultiMedia Card, Secure Digital, Memory Stick, and SmartMedia; preview photos before printing
Paper Capacity (pages)*	100	100	100	100	100	100
Ink Cartridge Price	\$12 for each color	\$12 for each color	\$23.70 black, \$18.95 color	\$11.35 for each color	\$20 black, \$35 color	\$20 black, \$35 color
Estimated Pages per Cartridge*	620 black, 280 to 980 color	620 black, 280 to 980 color	540 black, 220 color	628 black, 440 color	450 black, 390 color	450 black, 390 color
Image Quality	good	good	acceptable	acceptable	acceptable	acceptable
Text Quality	poor	poor	poor	poor	good	good
Rated Speed (ppm)*	.5 color	.5 color	8	8	17	17
Tested Speed (ppm)	3	3	2	2	6	6
Included Software	ImageBrowser, PhotoStitch	ImageBrowser, PhotoStitch	FilmFactory, Print Image Matching, ArcSoft Photompressions	FilmFactory, Print Image Matching	None	None
OS Compatibility	OS 8.6 or later	OS 8.6 or later	OS 8.5.1 or later	OS 8.5.1 or later	OS 9 or later	OS 9 or later
Comments	Images have nice balance and are less saturated; fast image printing.		Images tend toward yellow; PCMCIA slot for camera media.		Good text quality; fast on text but slow on photo printing; images tend toward blue; slots on front for camera media.	

*According to vendor.

Ink

All of the printers use archival ink that the companies claim will last for many years. Canon and Epson modestly claim 25 years, while HP says its pictures will look brand-new for 65 years. Of course, these claims are only true if you use that company's premium paper. We'll get back to you in 65 years about how our print samples are faring.

The Bottom Line

None of these printers is a slouch, and they all print bright photos with good detail. We slightly preferred the Canon printers for their nice-quality images and zippy speeds. Plus, at \$200, the S820 is just a great deal. If you plan on printing pages that combine text and images, however, the HP printers are a good bet.

Laser Printers

Black-and-white laser printers that won't exceed your credit limit

It used to be that laser printers cost in the range of thousands of dollars and you had to sneak into your parent's or spouse's office to print out your thesis, business report, or other such paper-wasting documents. Those days are over, now that you can snag your own laser printer for between \$300 and \$500.

Despite the great improvements in inkjet printers, the worst laser is still better than the best inkjet when printing text. Text from a laser jumps off the page, and laser print speed is the proverbial hare compared to the inkjet's tortoise.

We compared four laser printers from three companies: Brother, Hewlett-Packard, and Lexmark. We tried to get our hands on a Samsung printer (usually the company has a laser printer in its line for about \$200), but unfortunately, at press time Samsung was in the midst of revamping its lineup. It has, however, announced the ML-1700 series, a new line of personal-use black-and-white laser printers, due to ship in the first quarter of 2003.

Quality and Speed

Our text-quality and text-speed test prints came out almost identically on all the printers, with the exception of the Lexmark E322 Laser Printer. On the E322, the speed test done at 300 dpi yielded text that was noticeably less sharp than what we saw on the 1,200-dpi page. However, at the lower dpi setting, the Lexmark E322 also printed

our 20-page document fastest.

Not surprisingly, laser printers fall short when it comes to images. None of the images we printed looked good, but the HP LaserJet 1200 was particularly bad—washed out in light areas, murky in dark areas. This particularly annoyed us because the HP LaserJet 1200se took 10 minutes to print its crummy image, compared to 1 to 2 minutes for the other printers.

Setup

Setting up all of these printers was a snap despite some spotty Mac documentation. OS X instructions and drivers for the Brother HL-1440 and HL-1470N existed only on the company's Web site. Unlike most of the other printers we looked at, which gave OS X short shrift, the HP LaserJet 1200se included instructions only for OS X, not for OS 9. Odd.

In setting up the Lexmark, we came across an unusual warning. The toner cartridge came with a sheet telling us to return the empty cartridge to Lexmark because the company recycles it. If you don't want to deal with the hassle, you can contact Lexmark and get a cartridge that you don't need to return, but you'll have to pay for the privilege. The cartridge that needs returning is the Prebate cartridge for \$89; the High-Yield cartridge is \$154.

If you'd like to share your laser printer, you can. Only the Brother HL-1470N comes with Ethernet, but each of these printers provides a way to



EPSON STYLUS PHOTO 960
Sleek...black...Oh, and prints images with nice detail.



EPSON STYLUS PHOTO 825
Tons o' direct printing options—for not tons o' cash.

Laser Printers



LEXMARK E322 LASER PRINTER
A good choice if you need a PostScript poseur.



HEWLETT-PACKARD LASERJET 1200SE
What can we say? We weren't impressed.

Laser Printers Continued



BROTHER HL-1470N
The only one with built-in Ethernet. That is, if you like sharing.



BROTHER HL-1440
Every girl's crazy for a sharp-dressed man—and a sharp-text printer.

add it. The Brother HL-1440 works with Brother's NC-2010p, a 10Base-T external Ethernet print server available for around \$260. If you're willing to shell out \$200 more than you'd pay for the nonnetworkable version, the Lexmark E322n comes with built-in Ethernet. You can purchase the HP LaserJet 1200n for \$599, including the HP JetDirect external print server.

PostScript

Three of these four printers offer PostScript Level 2 emulation—only the Brother HL-1440 has no PostScript support (but whaddya want for 300 bucks?). If you're printing Word and Excel documents you'll never notice the difference, as they come standard with TrueType fonts. However, if you own PostScript fonts or you frequently print PDF files from Adobe applications, you should get a printer with PostScript emulation or, better yet, true PostScript support (but then you're talking more bucks).

Memory

Built-in memory matters with a laser printer. This isn't the case with inkjets

because your Mac calculates what to send to the printer and then sends the data a little bit at a time. This is one reason they don't come standard with Ethernet. However, with a laser printer your Mac sends the whole image at once. On the pro side, this frees your system quicker and enables you to network the printer. On the con side, if you print large documents, you'll fill a 2MB or 8MB buffer pretty fast.

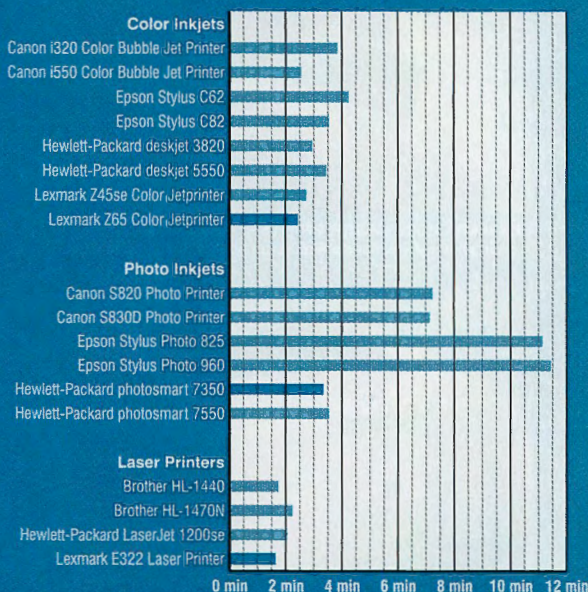
For instance, when we tried to print a 7MB photo file (which all the inkjets printed without an issue) on the Brother printers, they automatically decreased the dpi of the image to print it. The HL-1440 printed the image at 300 dpi, and the HL-1470 printed it at 600 dpi.

The Bottom Line

If you don't need PostScript support, it's hard to beat the Brother HL-1440. It's got a rock-bottom price, excellent text quality, and lickety-split text-printing speed. If you need PostScript emulation, the Lexmark E322 is a good choice. It prints sharp text, it's fast, and it won't drain your kids' college savings account. Your kids will thank you.

Time Trials

Here's how all of our printers stack up when printing a 20-page Word document at their highest speeds.



*All times are in minutes. Shorter bars are better.

*We tested on a Dual 867MHz Power Mac G4 (Mirrored Drive Door) running Mac OS 10.2.1 with 256MB of RAM. We connected all of the printers to the Mac via USB. For the 20-page test, we used Microsoft Office v. X. We used Adobe Photoshop 7.0 for our image samples.

LASER PRINTERS COMPARED

Company	Brother		Hewlett-Packard	Lexmark
Contact	800-276-7746, www.brother.com		888-999-4747, www.hpshopping.com	800-539-6275, www.lexmark.com
Printer	HL-1440	HL-1470N	LaserJet 1200se	E322 Laser Printer
Rating	★★★★★		★★★★★	★★★★★
Price	\$300	\$500	\$399	\$419
Maximum Resolution	1,200 by 600	1,200 by 600	1,200 by 1,200	1,200 by 600
Ports	USB, parallel	Ethernet, USB	USB, parallel	USB, parallel
Memory (default)	2MB	8MB	8MB	8MB
Maximum Memory/ Cost of Upgrading*	34MB/\$40	36MB/\$40	72MB/\$527	72MB/\$549
Paper Capacity	250	250	250	150
Toner Cartridge Price	\$60	\$60	\$65	\$89
Estimated Pages per Cartridge*	3,000	3,000	2,500	3,000
Image Detail	poor	poor	poor	poor
Text Quality	good	good	acceptable	good
Rated Speed (ppm)*	15	15	15	16
Tested Speed (ppm)	12	9	10	12
Included Software	None	None	None	MarkVision
OS Compatibility	OS 8.6 or later	OS 8.6 or later	OS 8.6 or later	OS 8.6 or later
PostScript	No	Level 2 emulation	Level 2 emulation	Level 2 emulation
Comments	Sharpest text; blotchy banding in gradations.	Ethernet standard with this model; light but sharp text.	Worst image quality and also slowest printing; text on light side but still quite sharp.	Text is on dark side but has clear edges and is easy to read.

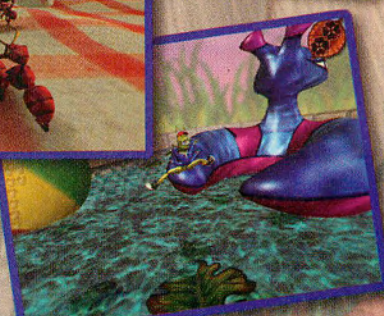
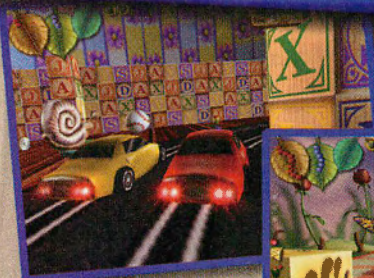
*According to vendor.



Kristina De Nike has done lab testing for *MacUser*, *MacWeek*, and *Macworld*. It seems only right that she's now testing for *MacAddict*.



BUGDOM[®] 2



It has been 3 years since Rollie McFly defeated King Thorax, but the Bugdom is still a dangerous place.

Bugdom 2 is an entirely new 3D action-adventure game with all new levels, characters and gameplay!

For Mac OS X and 9!

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BE PREPARED

DISK UTILITIES EXPLAINED



There's a fine line between paranoia and enlightened self-interest.

Although there's no reason to live in mortal fear of hard-drive misbehavior, you should arm yourself against the possibility of disaster.

by **Deborah Shadovitz**
photography by **Mark Madeo**

The question is not *if* your hard drive will give you trouble. The question is *when*. Sure, drives are more reliable today than ever before, but just as life without car insurance or a medical plan is risky, so is life without a disk utility—and the knowledge of how to use it.

But before we dive in and give you the know-how you need to better understand your hard drive and its maintenance, troubleshooting, and repair, let's clear up one important point: Whether your world is decorated in OS X Aqua or OS 9 Platinum, the next couple of pages apply to you. That's because even though OS X is a completely different operating system than OS 9, they share the same underlying file system.

WHAT CAN GO WRONG?

All the information about your files is simply a bunch of entries in a bunch of databases. And since these databases get updated every time you do anything on your drive, there's always a chance they can get messed up. An application may crash while a database update is in progress, for example. You might absently disconnect a device—say, unplug a FireWire drive without dismounting it first—before your changes are written to a file-system database from the RAM cache that temporarily stores them. Alternatively, the databases might simply become corrupted while being written to disk. More disastrously, your hard drive's read-write heads might crash—come into contact with the hard disk—and literally scrape data off your disk. Danger lurks everywhere.



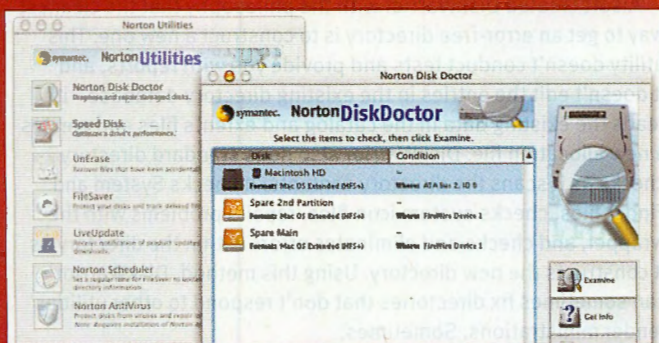
AT YOUR SERVICE

Several disk utilities are available for Mac users, each with its own way of getting the job done. Here are some of the best.

NORTON UTILITIES 7.0

Symantec, www.symantec.com, \$99.95

Norton, as this suite of seven utilities is commonly called, will repair common problems, recover files, and improve your Mac's performance.

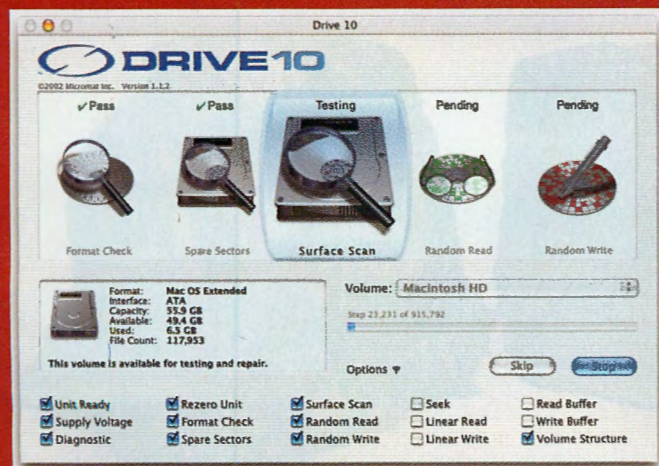


Disk Doctor is the kingpin in Norton's gang of disk-utility apps.

DRIVE 10 AND TECHTOOL PRO 4

Micromat, www.micromat.com, \$69.95 and \$97.98, respectively

Both of these utilities have the same drive-maintenance chops, but TechTool Pro also provides hardware tests, virus protection, file recovery, and more.

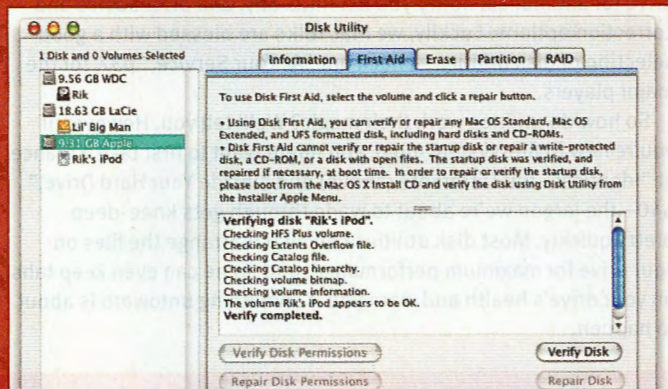


Choose a drive and the tests you want to run, then sit back while Drive 10 takes care of business.

DISK FIRST AID (OS 9) AND DISK UTILITY (OS X)

Apple, www.apple.com, free

Each of these basic apps, included with your OS, conducts a quick check of your drive's volume structure and performs basic repairs.



Don't forget that you already own a disk utility—and a pretty powerful one at that.

DATA RESCUE X, DATA RESCUE CLASSIC

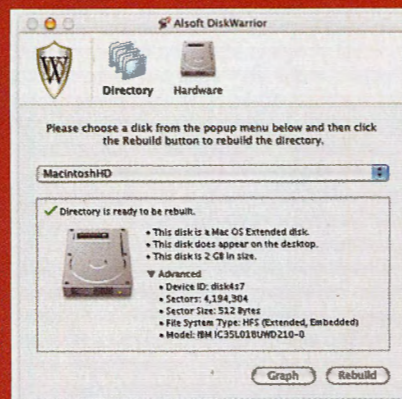
Prosoft Engineering, www.prosofteng.com, \$89 each

Not strictly a disk-repair utility, Data Rescue focuses instead on data recovery. Prosoft is also about to release Data Recycler X, which it claims will not only recover deleted files, but also check file system integrity and provide warnings of impending drive failure. Stay tuned for more info.

DISKWARRIOR 3

Alsoft, www.alfsoft.com, \$69.95

DiskWarrior's raison d'être is to build a new directory—your drive's collection of file-info databases—to replace a damaged one.



DiskWarrior concentrates on only one thing—rebuilding your directory—but it does that very well.

IDENTICAL— BUT DIFFERENT

Both OS 9 and OS X keep track of files on your hard drive using the same system of logical formatting: Mac OS Extended format, better known by most folks as Hierarchical File System Plus (HFS+). Knowing that, you'd think that the terminology for OS 9 and OS X file-system structures would be identical, right? Wrong.

When you're talking about how HFS+ knows where your files are resting comfortably on your drives, different terms describe many of the same hidden files that contain file-system information.

OS 9: BOOT BLOCKS

OS X: STARTUP FILE

OS X uses a startup file that your Mac's ROM (read-only memory) looks for and relies upon for instructions such as which operating system to run and what logical formatting system the disk uses. The startup file provides the ground rules for operation: what files are called, how many files the OS can open at once, and so on. In OS 9 and earlier, the boot blocks in the wrapper handle these functions (see next entry).

OS 9: THE WRAPPER

OS X: A MOOT POINT

In 1998, Apple switched from Mac OS Standard logical formatting (HFS) to Mac OS Extended (aka HFS+). When it did so, it needed to protect HFS+ drives from pre-OS 8.1 Macs, which couldn't recognize HFS+ drives and would try to initialize them. To do so, Apple devised the *wrapper*, a set of HFS data that wraps around HFS+ data, fooling Macs running older systems into thinking nothing has changed. If your drive has a damaged wrapper, it may no longer boot in OS 9. In OS X, thankfully, the whole question is moot.

➔ WHAT CAN I DO?

Your first line of defense is a good offense: Back up early and often. But even with a backup CD, Zip disk, or tape sitting snugly in your desk drawer, it's still more convenient to fix problems and get right back to work—and that's where disk utilities can help.

A disk utility knows about the methods used to arrange, catalog, and store file-system data on your drive. It can examine your drive for anomalies, notify you if it finds any, and offer advice and correction options. Luckily, we Mac folks are blessed with a good selection of disk utilities—check out “At Your Service,” p37, for the major players.

So how do utilities work their magic? We'll tell you. However, if you're new to file-system mojo, you might want to first take a glance at “Identical—but Different” (above) and “Inside Your Hard Drive,” p40—the jargon we're about to wade through gets knee-deep pretty quickly. Most disk utilities can also rearrange the files on your drive for maximum performance, and some can even keep tabs on your drive's health and warn you if something untoward is about to happen.

REPAIR OR REBUILD?

There are two approaches to dealing with file-system directory corruption. One is to repair database files by editing their records. The other is to read the data within the files and their records and build completely new database files—with the added advantage of creating cleaner, more simplified data structures, enabling your Mac to find and read data more quickly.

Alsoft created DiskWarrior with the philosophy that the cleanest way to get an error-free directory is to construct a new one. This utility doesn't conduct tests and provide you with reports, and it doesn't edit the entries in the existing directory database—it reads the existing data in the catalog and extents files and creates a new allocation file. DiskWarrior also does standard directory checks as it scans the directory contents: It checks System and Finder files, checks custom icon files, repairs problems with the wrapper, and checks and eliminates errors within the directory as it constructs the new directory. Using this method, DiskWarrior can sometimes fix directories that don't respond to other utilities' tender ministrations. Sometimes.

WHEN ALL ELSE FAILS

What happens if your drive is damaged beyond the restorative powers of a disk utility? Then it's time to focus on industrial-strength data recovery.

If your drive has not been physically damaged, your first move should be to pick up a copy of Prosoft Engineering's Data Rescue (\$89.95, www.prosofteng.com). Data Rescue runs off a CD, scours your entire drive, reassembles files and folders as it finds them, and stores them on another drive. After it performs its magic, you can either reformat your damaged drive—or buy a new one.

If your drive is totally hosed, turn to the recovery wizards at DriveSavers (<http://drivesavers.com>). Even if your drive is so damaged that it won't spin, DriveSavers can probably salvage your data—though it'll cost you. These guys work like surgeons in a clean room, manually reading your disk with custom tools they invented just to save your bacon.



Don't you just hate it when you tell your waiter “rare,” but when your order arrives, it's well-done? Then imagine how the owner of these iMacs felt before DriveSavers recovered their data.

OS 9: MASTER DIRECTORY BLOCK OS X: VOLUME HEADER BLOCK

Here lies information such as a volume's size and how much space is available in it, along with a count of how many files and folders the volume holds and the locations of the *catalog* files, *extents* files (see next entry), and the System Folder. This file also keeps track of the next available ID number and location to assign a file or folder upon its creation, and contains the volume's creation date, other dates, and other technical information.

OS 9: THE DIRECTORY

OS X: THE DIRECTORY—WITH MODIFICATIONS

The directory is the all-important repository of information about where your files reside on your

hard drive. It has three subsections, each with multiple names. We first list the newer name that Apple would prefer you use in this Brave New World, along with the older but still often used names from the days of HFS.

The *allocation file* (aka *volume bitmap*) tracks each block, telling the file system whether a block contains data or is free. The *catalog file* (aka the *catalog tree* or *catalog B-tree*) contains information about all of the files on the volume: applications, folders, and your documents. Each file's catalog entry includes the file's name, the folder that holds it, its location on the desktop, and the location and length of the file's data and resource forks. As you save and delete files, and as original free contiguous space on your disk gets used up and your system starts to save files in pieces, the catalog file stores the locations of

the first eight pieces, called *extents*. If a file is fragmented into more than eight pieces, the locations of the remaining pieces are stored in the third member of the directory troika, the *extents file* (aka the *extents tree* or *extents B-tree*).

New to the catalog file in OS X is an old-style Unix-file serial number, called an *inode*. Also new and old are *symbolic links*, also known as *sym links*. A sym link works like an alias, but its path is hard-coded—if you move a sym-linked file, the link breaks and the file is of no use. The benefit is that if you put another file with the same name in its place, the new file gets used. Sym links are not user-created, but since you may have heard murmurs about files that break when moved, we thought you might like to know about them.

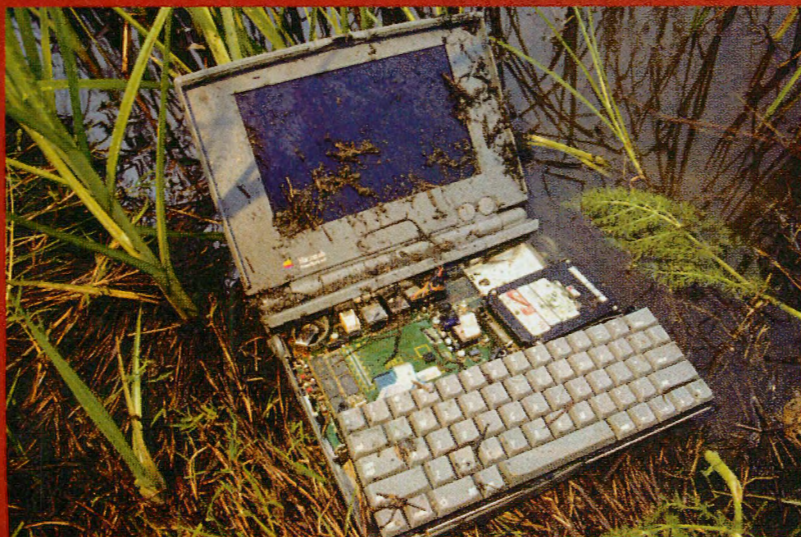
Symantec based Norton Utilities on the idea that rebuilding is overkill when all you need is a simple data adjustment—think chiropractic care rather than orthopedic surgery. Norton Disk Doctor—the file-repair muscle of Norton Utilities—first checks the partition map to make sure everything on the disk is laid out properly. Then it looks at the volume header; checks that the data in the catalog, extents, and allocation files is correct; and finally rechecks the volume header for consistency. When it finds problems, it fixes them—if it can. Lastly, it checks each file's creation and modification dates. Also, if Disk Doctor finds significant damage to the directory's structure, it rebuilds and replaces the catalog file—a partial directory rebuild.

If file-system foul-ups are too severe for Disk Doctor's restorative powers, your next step is to run Norton's Volume Recover, which rebuilds your directory, à la DiskWarrior. Volume Recover scavenges the catalog and extents files, creates a new allocation file, and replaces the old directory with a rewritten one. One word of caution: If you're running OS X, use Volume Recover 6.03 and earlier only in an emergency—Apple recently made some changes that may cause earlier versions to muck up OS X permissions.

Drive 10 and TechTool Pro each provide two ways of building a new directory. Micromat's philosophy is that it's unnecessary to repair a volume that isn't damaged, so both Drive 10 and TechTool Pro begin their work by verifying the disk structures. If they find problems, they recommend that you choose to repair them by rebuilding the allocation file based on the information in the catalog and extents files. Additionally, they comb the catalog and extents files to reconcile all references to data that is referred to but which has become unlinked within those directory files.

If you'd rather skip Drive 10's and TechTool Pro's test step, you can instead simply rebuild the directory via the Services menu (in both apps), which is essentially what DiskWarrior does. If this process finds problems it can't fix by rebuilding, such as missing directory data, it stops and recommends that you go back and perform the testing-and-repair step.

You shouldn't shun Disk First Aid and Disk Utility simply because they're free. Provided by Apple along with OS 9 and OS X, respectively, both of these utilities run simple but powerful checks of the file system's volume structure. Disk Utility does so using a tried-and-true Unix test euphoniously named *fsck*—file system



This PowerBook sank to the bottom of the Amazon along with the cruise ship on which it was enjoying a South American vacation. Two days later, its owner donned scuba gear, fished it out, and shipped it to DriveSavers, which saved its data.



No, this PowerBook wasn't in Marlon Brando's back pocket, it was under the back wheels of a bus at Mac Expo. Its data? DriveSavers saved it.

INSIDE YOUR HARD DRIVE

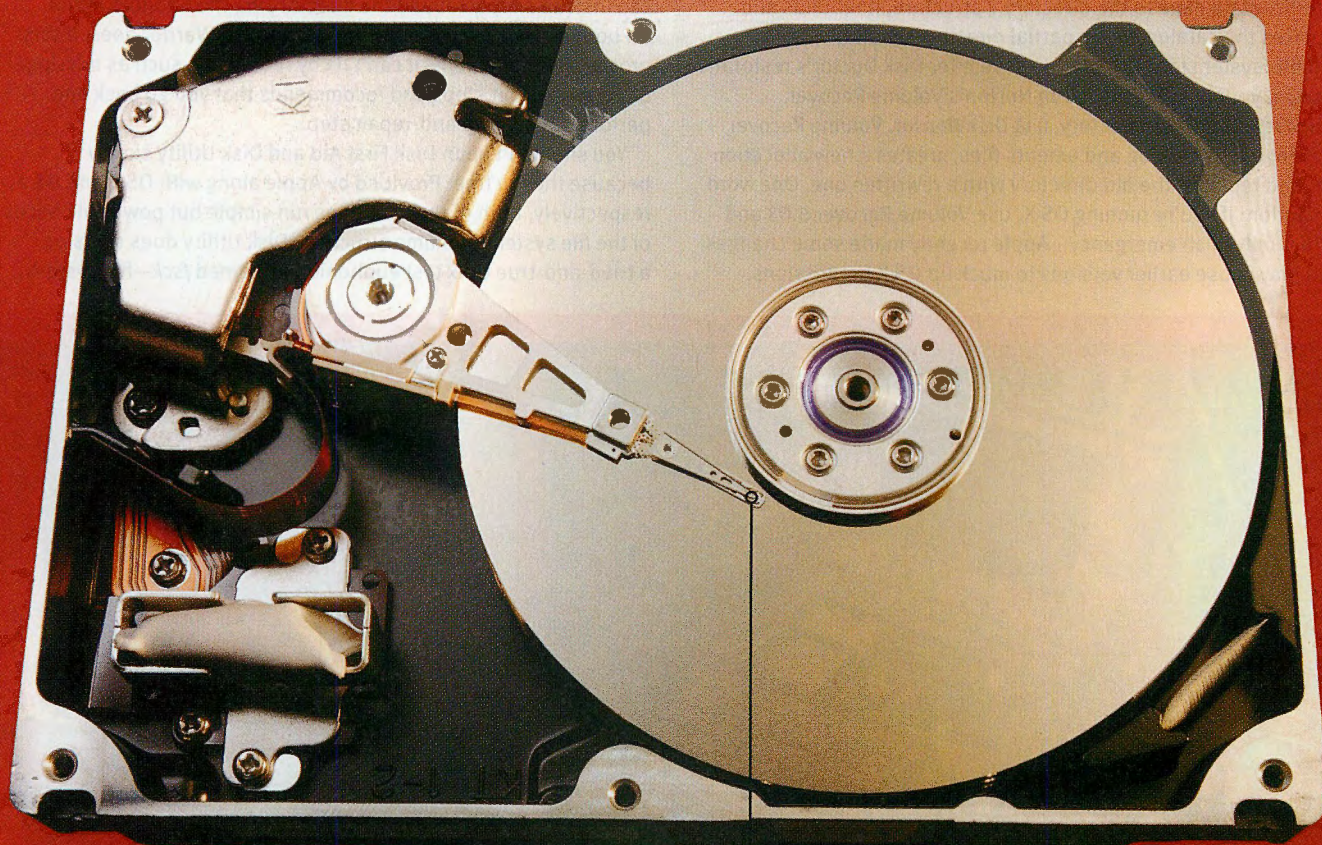
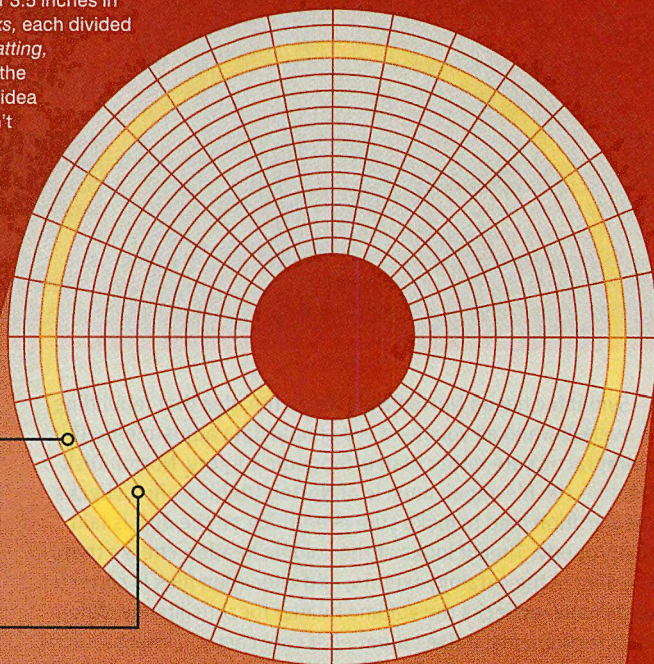
Your hard drive organizes files using two different strategies: one physical and one logical.

Physically, your hard drive holds one or more *platters*—thin disks usually 2.5 or 3.5 inches in diameter, coated with a magnetic film. On both sides of each platter, circular *tracks*, each divided into multiple *sectors*, are written at the factory via a process called *low-level formatting*, which uses a magnetic technique called *embedded servo*. You can't actually see the magnetically written tracks and sectors, but we've drawn them so you can get an idea of their organization—and even if they were visible, they'd be so small you couldn't pick them out. For example, the WD Caviar, a typical 3.5-inch 80GB hard drive from Western Digital, has 16,383 tracks, each with 63 sectors.

Logical formatting (better known as *initializing*) is a software-based process that completes the disk's organization. The wide world of computing offers a number of different types of logical formatting, but when Apple introduced OS 8.1 in 1998, the company standardized on a method called the Mac OS Extended format, also known as Hierarchical File System Plus, or HFS+. Logical formatting uses *blocks* rather than the disk's physical sectors as its fundamental unit; a block is equivalent to one or more sectors, depending on the drive's size.

Tracks and Cylinders: Data is written track by track, and tracked (no pun intended) by number. The top and bottom tracks of either single or multiple platters collectively constitute a *cylinder*.

Sectors: These divide circular tracks into partial pie slices. Track and sector coordinates identify data on the disk.



Read-Write Heads: Each platter has a minimum of two read-write heads, one above and one below. These heads ride so close to the platter that if one of them runs into a minute spec of dust, it has the same effect as a head-on collision with a Lincoln Navigator. Well, sorta.

→ consistency check. If the allocation file is wonky, fsck fixes it so that two files don't get written to the same allocation block. However, fsck cannot fix other things such as the catalog file, which the commercial utilities can repair. Apple's utilities run automatically whenever you mount a disk that didn't dismount properly, but you can also run them anytime you have a nagging feeling that things aren't quite up to snuff.

FILE STRUCTURE TESTS

In addition directory structure tests, Disk Doctor and TechTool Pro also perform some file structure testing. Both conduct a series of tests designed specifically for OS 9 and Carbon applications and files. First they check each file's bundle bit—a *flag*, or one-bit on/off signal—to see if it's set correctly to indicate that the file is associated with a specific application. It then checks the custom icon bit to see if the file has its own custom icon, and then checks for damage in the file's resource fork. (Neither Disk Doctor nor TechTool Pro can fix a file with a damaged resource fork, but they both alert you to restore the files from your most recent backup—which was this morning, right?) Lastly, they check each file's creation and modification dates.

MEDIA TESTS

Your data is only as good as the disk it lives on, so it's smart to check it from time to time.

Norton Disk Doctor provides a Check Media test that, uh, checks your media to make sure data can be read from all areas of the drive. When Check Media finds an unreadable block, it tells your drive's directory not to write data to that location. This test can take several hours, so run it only when you suspect a media problem. (Under Preferences, select Check For Defective Media to turn it on.) Norton Utilities doesn't do other hardware testing and doesn't test writing.

Drive 10 and TechTool Pro can also perform media tests. They test whether the disk can be both read and written to, determine whether it has bad blocks, and check out the accuracy of the disk drive's head positioning.

Both DiskWarrior and TechTool Pro read and report data from SMART (Self-Monitoring, Analysis, and Reporting Technology)—a PC-industry standard that collects a wealth of information about your disk's health. Tests run the gamut: temperature, spin-up time, read failures, throughput performance, and more. Using this, both DiskWarrior and TechTool Pro alert you to a failing drive—they can't fix it, but it's good to know if your drive is about to go south.

DIRECTORY PROTECTION

Although regular backup is a Very Good Thing, do be aware that when you back up your data, you're not backing up your directory. Most disk utilities offer protection for this essential item.

Norton Utility's FileSaver and TechTool Pro's Protection provide similar protection mechanisms: scheduled directory backups and Trash retrieval. (As we write this, Drive 10 doesn't offer directory protection.) Each backs up your directory at intervals you specify, keeping multiple copies for extra safety, and TechTool Pro performs a quick volume-structure check first. If your drive sustains severe damage, a directory backup can restore the volume to the state of the last saved directory. In addition, both utilities track the locations of each file you trash, so if the blocks it occupied have not been written over, these tools can find them and restore them to life.

In OS 9, DiskWarrior's DiskShield checks every read and write to the directory, notifying you of errors and stopping potential damage. It also force-writes directory changes whenever they're made, instead of leaving them in RAM cache where they can disappear in a crash. Since Alsoft expects that future versions of OS X will include the *journaling* feature for file-change tracking now available in OS X Server—which makes DiskShield redundant, according to Alsoft—the OS X version of DiskWarrior doesn't contain DiskShield.

DATA RECOVERY

If your utility can't fix your files and you haven't been running directory protection, don't panic. You may still have a solution to your lost-file conundrum—depending on your directory's health and how full and fragmented your drive is.

Norton's UnErase can search the catalog file and—cross your fingers—recover files from it. It can also search your data for specific file types or for files that contain specific text, so you can find and attempt to recover them. However, if you've trashed a file and emptied the Trash, you may be out of luck: Unless the trashing was very recent and you haven't used your drive much, there's a good possibility you've already overwritten it. *jPobrecito!*

TechTool Pro provides four levels of scanning for and resurrecting files, depending on whether you've turned on its directory protection feature, which creates and maintains a backup of the directory. Additionally, you can seek files by specific attributes. Again, if you haven't used TechTool Pro's protection features and you've trashed your files, don't count on getting them back. Drive 10 is not designed to work as a data-recovery tool.

DiskWarrior can also help recover files by letting you copy files from its Preview Disk feature after it builds a new directory.



FILE FORESTRY

If you're wondering whether catalog and extents files were once named *trees* or *B-trees* for arboreal reasons (see "Identical—but Different," p38), you're on the right track: *B* stands for balanced and *tree* for the way data spreads out in trunk-limb-branch-twig fashion.

The catalog B-tree is essentially your drive's table of contents, with one entry per file describing that file's name, location, and other

information. When a file is significantly fragmented, the extents B-tree contains information about where on the disk its parts are scattered.

B-trees store data in two types of nodes: *leaf nodes*, which store the file's data, and *index nodes*, which contain the location of the leaf nodes.

➔ DEFRAGMENTATION AND OPTIMIZATION

Defragmentation gathers all the pieces of each file together in consecutive blocks, minimizing the time your drive needs to access each chunk. In addition, when files are in one piece, the catalog file becomes much simpler and there's no need for an entry in the extents file, further improving performance. Optimization is a further refinement of defragmentation—this process relocates all files together on one part of your drive, so any free space is also contiguous.

In addition to defragmenting your drive, Norton's Speed Disk puts similar file types (applications, System files, and so forth) together to minimize file-seeking time. Although the benefit of such groupings is questionable in these days of high-speed drives, it can't hurt and it might help. Speed Disk is also smart enough to keep volatile files such as swap, temp, and trashed files, as well as user documents, close to free space, so modification and deletion are less likely to cause further fragmentation. Finally, to avoid future fragmentation, Speed Disk lets you choose a disk-use optimization profile—CD Mastering, Software Development, and so on—and then arranges the data in ways most beneficial for different usage patterns.

Both Drive 10 and TechTool Pro offer two options to minimize defragmentation time. Choosing the File Fragments option simply

puts each file's far-flung parts back together, while Files And Disk Fragments also groups the files for maximum contiguous free space—an optimization technique. A Remaining Amount To Relocate notification shows you how much space remains to defragment during the process.

DiskWarrior's straightforward defragmentation and optimization tool, Plus Optimizer, is a separate application that runs in OS 9. Unlike Symantec's, neither Alsoft's nor Micromat's disk utilities organize files by file type—the companies claim there's no real benefit in doing so.

SO WHICH ONE DO I BUY?

If these four disk utilities were all racehorses, we could simply line 'em up, slap their haunches, and see which one crossed the finish line first. Sadly, picking a disk-utility winner isn't that easy. In our experience, Norton is a powerful tool with capabilities DiskWarrior can only dream of—but we've seen DiskWarrior repair drives that Norton had pronounced unfixable (and vice versa). TechTool Pro has a full complement of hardware tests that puts the others to shame, and Drive 10 has a foolproof interface on its side. As much as we'd like to say "Buy Product X," life isn't that simple. Look at your needs, look at your hardware, look at your paranoia level, then make your choice. Or choices. ■

DISK UTILITIES COMPARED

Owning a disk utility with a ton of features can be a good thing—but only if you need them. Among disk utilities, even the feature-light DiskWarrior can be a lifesaver in certain directory-damage scenarios. That said, TechTool Pro and Norton Utilities include a repertoire of tricks DiskWarrior can't even attempt.

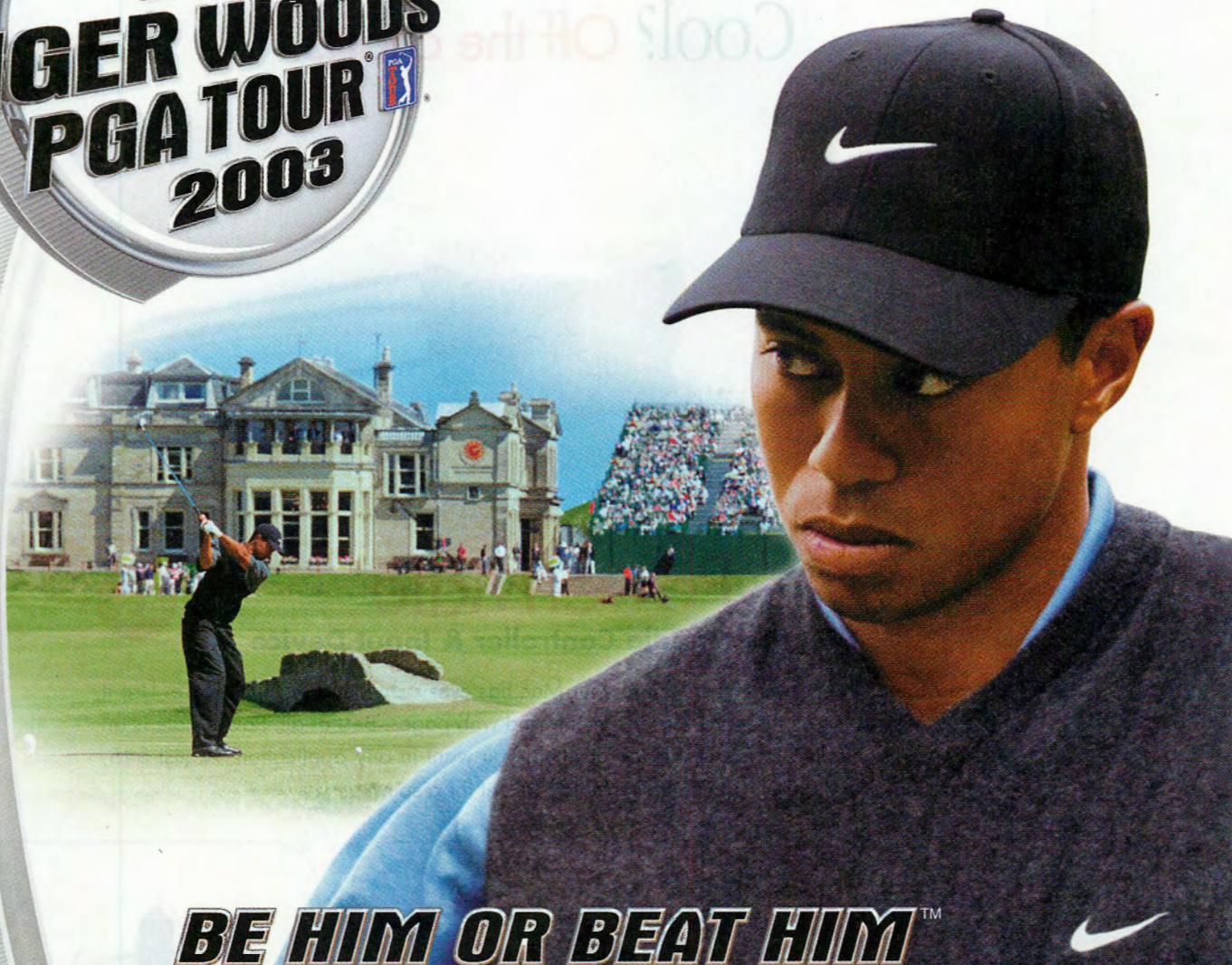
	Alsoft DiskWarrior 3	Micromat Drive 10	Micromat TechTool Pro 4	Symantec Norton Utilities 7.0
Checks bundle bit			✗	✗
Checks custom icon bit			✗	✗
Checks data-retaining capability		✗	✗	✗
Checks creation and modification dates			✗	✗
Checks hard drive hardware		✗	✗	
Checks physical drive structures			✗	✗
Creates emergency partition			✗	
Defragments files	✗*	✗	✗	✗
Performs multiple tests concurrently			✗	
Protects against file loss			✗	✗
Rebuilds and replaces directory	✗	✗	✗	✗
Recovers data			✗	✗
Repairs directory				✗
Repairs individual files			✗	✗
Reports SMART data	✗	✗	✗	
Validates resource fork			✗	✗

* Via separate bundled product, Plus Optimizer.



Deb Shadovitz is a widely published Mac veteran who extends her many thanks to Blake Hodgetts, senior Quality Assurance engineer at Symantec, and John Christopher, data recovery engineer at DriveSavers, for teaching her that articles are made by nerds like she, but only HFS can make a B-tree.

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PLUS:

TheHotList

- 58 The best of the best from recent reviews.

With all the great games that have come out for the Mac recently, we're pleased as punch to have finally gotten our hands on Belkin's menacing Nostromo n50 SpeedPad (pictured below), a veritable fistful of control that puts us in a whole new league as gamers. It worked great with our favorite game du jour, No One Lives Forever. We also got our mitts on some cool AirPort-compatible networking widgets that will be infinitely cooler when the OS X drivers materialize. We got our collective groove on DJ style with the MadPlayer, and discovered to our unsurprised chagrin that the Mac-friendly business-card scanner of our dreams can't quite hang with today's fancily designed business cards. In the near future, we'll finally get a look at the fabled external DVD burner—the one with its own mastering software. Really, we mean it this time.

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●●●●○
GREAT

You'll be impressed.

MacAddict RATED
●●●○○
SOLID

You'll be satisfied.

MacAddict RATED
●●○○○
SO-SO

You'll be disappointed.

MacAddict RATED
●○○○○
LOUSY

You'll be pissed off.



If we were shopping for this type of product, this is the one we'd buy.



Compatible with Mac OS X or later.

Compatible with Mac OS 9 or earlier.

Director MX

MULTIMEDIA AUTHORIZING

Since its inception in 1987, Macromedia Director has been king of the multimedia-creation hill. From advanced presentations and video collages to animation and interactive 3D games, if you can dream it, you can build it using Director. And yet whispers of Director's demise have been growing in recent years, due in large part to the popularity of its ever-evolving cousin, Flash. Despite the rumors, a new OS X-native Director is out, sporting Macromedia's new MX digs.

Unlike the last significant upgrade (Director 8.5; see *Reviews*, Aug/01, p42) which made big news with its extensive new video and 3D content support, Director MX's selling points are rooted primarily in its snazzy new look and usability features. In fact, so little has changed about the software's authoring abilities that Macromedia has decided not to create a new Shockwave Player for playing Director MX content. This is great news for Director developers who are used to waiting up to a year for their audience to upgrade to the

Multimedia developers need look no further than Director MX.

latest Shockwave player. Small updates to the existing Shockwave 8.5.1 Player (Macromedia calls them Xtras) will support MX's new features.

So if there's not much new about the authoring abilities, what's the point of this release? Well, let's get the obvious one out the way—Director MX is fully OS X compatible, and it runs *exclusively* on OS X. The new look is extremely easy on the eyes and includes those handy dockable panels found in other recent Macromedia products. In general, the new MX treatment means a much more stable environment and more user-friendly methods for organizing and using Director's many tool sets.

And speaking of user-friendly, Director MX includes a brand-

Don't look now, but Director has gone MX—complete with streamlined panels for managing the multitudes of libraries, toolbars, and inspectors.

new Object Inspector that makes complex Lingo- or Behavior-driven projects much easier to work with. This new wonder tool is especially helpful when you're working with complex 3D scenes, as it keeps track of 3D-object resources such as parent-child relationships, texture properties, position coordinates, lighting attributes, and much more. The previous release buried this information in Lingo code, making it extremely difficult (if not impossible) to find. On a similar note, Director MX includes a brand-new integrated debugger tool that will have your Lingo code straightened up and flying right in record time.

Director MX continues to make important strides in the integration of Flash and Fireworks content. With the new Launch And Edit feature, users can open the Flash MX and Fireworks MX authoring environments and update the integrated content directly in the Director movie. This means much less exporting and importing of content. Director MX also brings better Lingo control over Flash MX objects, but don't get too excited—Lingo and Flash's ActionScript are still just barely on speaking terms.

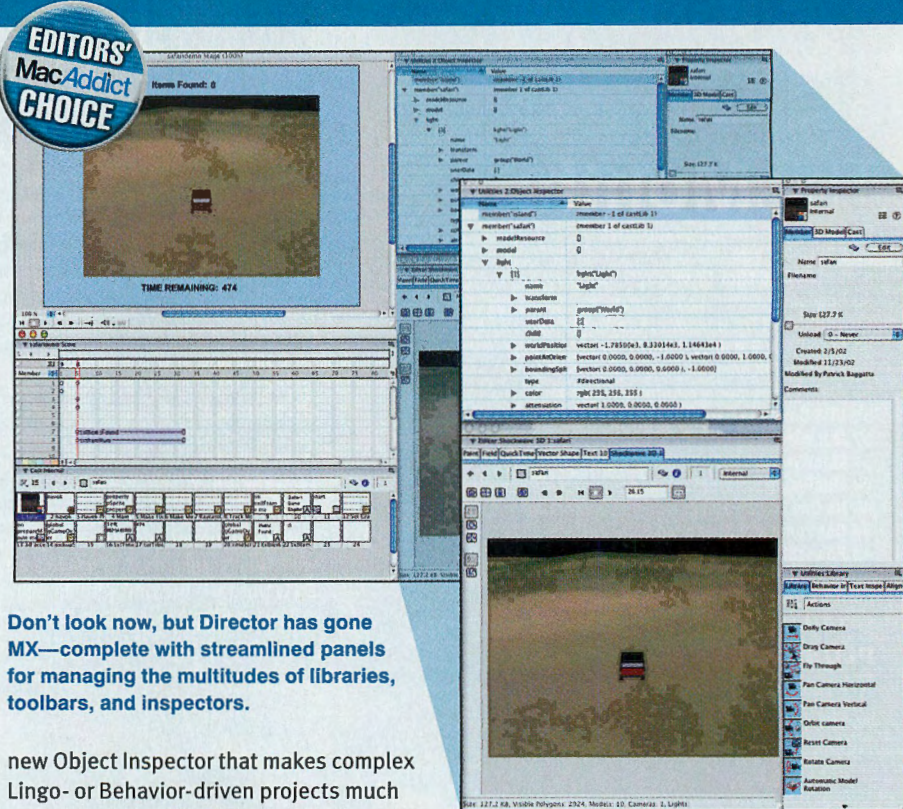
Rounding out the list of major new features is the ability to create accessible content easily. Developers can now create online and stand-alone software with captions and/or speech that enable

users with hearing or visual disabilities to appreciate their hard work. Macromedia has made similar advances in other recent software releases, but none as thorough and easy to use as those found in Director MX.

Although no one expects Director MX to regain total control of the multimedia market (at least not while Flash MX is around), there is little doubt that developers looking to create the Web's most advanced content need look no further than Director MX. This is especially true with Director's open-door policies toward Flash MX and other popular multimedia standards such as QuickTime, MPEG, and Real Media.—Patrick Baggatta



The new Launch and Edit features make it a snap to integrate Flash content into Director projects.



COMPANY: Macromedia
CONTACT: 800-457-1774 or 415-252-2000,
www.macromedia.com
PRICE: \$1,199, \$399 (upgrade from version 8 or 8.5)

REQUIREMENTS: G3,
Mac OS 10.1.2 or later,
128MB of RAM

GOOD NEWS: Sleek new OS X interface. Comprehensive
new object inspector and debugger. Better Flash integration.
BAD NEWS: Limited number of new features.

MacAddict RATED
★★★★★
GREAT



The MadPlayer won't make you a DJ, but it can make you sound like one.

MadPlayer

PORTABLE DJ MACHINE AND MP3 PLAYER

Every once in a while, a manufacturer comes out with a product that is the answer to a question nobody is asking—take MadWaves' MadPlayer, for example. When was the last time you said to yourself, "What I really need is an MP3 player with an FM radio that's also a teeny

music production studio"? Well, maybe you have been saying that, and if so, then the MadPlayer will make perfect sense to you.

Looking and operating more like a handheld video game than a radio or MP3 player, the MadPlayer lets you load and play your fave MP3 files, tune in and listen to FM radio, or create your own tracks with the built-in synth, sampler, and effects, as well as your voice. Included is a funky headset with a microphone (so you can satisfy any urge you might have to be like Britney or the Backstreet Boys), as well as rechargeable batteries and a special USB cable for interfacing with your Mac.

One cool feature of the MadPlayer is that you can combine all of its features when it comes to creating tracks. Mix various bits of the internal grooves with MP3s and FM radio bits, and sing over the whole mess with the headset mic. We created a surefire lawsuit by combining the built-in trip-hop beats with a Beastie Boys MP3 and bits of NPR sampled off the FM receiver.

Composing tracks on the MadPlayer is easier to do than it is to describe. The device divides drums, bass, lead lines, riff, sample, and microphone utterances into six separate tracks that you navigate using what MadWare analogizes as a six-lane highway (it looks a lot like that canyon Luke had to fly down in the original *Star Wars* to blow up the Death Star). Just pick a style (the player comes preloaded with 20, including HipHop, Techno Mix, Ambient, and Garage; the company promises more to come at www.madplayer.com), and use the joypad to fly down the lanes and delve into the tracks individually.

Although you can play MP3s and other audio formats, everything you create is stored in the MadPlayer's supercompressed proprietary format. It really has fantastic sound quality, and the only drag is that you can't pop the included 32MB SmartMedia card (the MadPlayer will take up to 128MB cards) into a card reader and extract your tracks. However, you can convert certain files to MIDI format

for use in your favorite sequencer app, or pipe them out of the MadPlayer through an external recorder. The MadWorld section of MadWaves' Web site is a must for mad players—here you can interact with other users in the forums and download software updates and new tracks to load into the player. Also, should your ego demand it, MadWorld lets you upload your compositions for other MadPlayer users to enjoy.

So who is this thing for? That's a tough one. History has shown that marketing music-making devices for people who are not musicians is a tough haul. People who are interested in making music tend to go the more traditional synth-computer-guitar-whatever route, and those who aren't interested in making music get their fix through passive pursuits like listening to CDs and radio. Be that as it may, it doesn't detract from the MadPlayer's innate coolness. With this unique device, you can create killer-sounding tracks that don't sound totally canned—tracks you can use behind iPhoto and iMovie projects, for example, when you get sick of the yuppie-lite classical fare those apps include. The MadPlayer's possibilities are more eclectic than endless, but it's a darn cool little device.—Kent Carmical

Creates killer-sounding tracks that don't sound totally canned.

COMPANY: MadWaves
CONTACT: 866-623-7529,
www.madwaves.com
PRICE: \$250

REQUIREMENTS: USB-equipped
Mac, Mac OS 8.5.1 or later

GOOD NEWS: Awesome sound quality. Unique. Easy to use.
Great online support.
BAD NEWS: Limited to 128MB SmartMedia. A bit pricey.

MacAddict RATED
GREAT

PowerShot S230 Digital Elph

3.2-MEGAPIXEL DIGITAL CAMERA

We've found ourselves a new companion. With its dainty size (it's a bit squatter than an Altoids tin), good looks, and discreet behavior at social gatherings, Canon's latest Digital Elph, the PowerShot S230, goes with us everywhere, fitting easily into a purse or coat pocket with room to spare. Though the tiny camera may be hard to handle in large paws, and though it doesn't have all the bells and whistles we're used to seeing in comparable cameras, the S230's performance made us forgive its limitations.

The midjet camera features a beefy 3.2-megapixel resolution (2,048 by 1,536

The S230's performance made us forgive its limitations.

pixel maximum), 2x optical and 3.2x digital zoom, a 1.5-inch color LCD screen, four flash modes, seven white-balance modes, five photo effects, macro mode, and video mode. It accepts CompactFlash Type 1 cards (16MB card included), and comes with a rechargeable Lilon battery (which snapped a respectable 200 shots with the LCD on) and a tiny charger pack.

Using the S230 is pretty much a point-and-shoot affair. The camera doesn't have aperture or manual-focus controls. This might not be important to those who just

want to go snap-happy on autopilot, but it somewhat limits newbie photographers who want to become more creative. Still, after shooting close to 300 pictures, we didn't miss these features for the most part—the camera consistently churned out good images. It features a 9-point autofocus, which worked well when shooting multiple-subject compositions. We couldn't get the camera to focus on stuff closer than 8 inches from the lens in macro mode (Canon claims it can focus as close as 3.9 inches), but we were able to create a pseudo narrow-depth-of-field look with it.

One big surprise—the camera handles low-light situations really well. When we want to preserve the lighting in a composition, we avoid using flash, as it often creates noise (artifacts) in images. With the S230's ISO set to 50 and the Long Shutter mode engaged, we snapped like crazy in subpar to low lighting and were amazed at how little noise many of our pics displayed—had the camera supported TIFF or some other noncompression image format (it does JPEG only), our images might have been squeaky clean.

The Slow-Synchro flash also works well, allowing us to flash a backlit sculpture (no, not in the sicko trench-coat fashion) and preserve the fiery sunset colors behind it.

Color was natural and fairly accurate, though our test camera's fluorescent white balance seemed a bit off, making our



Petite and perspicacious as a real elf, the S230 Digital Elph also does some of its best work at night.



The S230's low-light handling lets you capture even the creepiest of crawlers that lurk in the dark.

yellow ducky Smurf-like. After we set our own custom white balance, colors turned out normal. The camera also features four photo color effects; Sepia, Black and White, and Vivid Color do what they say, but Neutral Color left us feeling, well, neutral—it didn't look any different from our normal shots.

We don't often use video mode, but because the S230 was with us at all times, we got to capture a drunk friend professing his love for Natalie Portman (great blackmail stuff!), shoot an impromptu tour of a museum, and catch a red-light runner in the act. It was even fun. You can't shoot forever—up to 3 minutes at 320 by 240 resolution is the limit. With a high-speed CompactFlash card, you can shoot 640-by-480-resolution video for 30 seconds.

Though we wouldn't give up our studio camera with all of its bells, whistles, snaps, crackles, and pops, we'd gladly take the S230 with us everywhere else to get nice, high-resolution images.—Kris Fong



NEUTRAL



VIVID

Vivid is truly vivid, but the Neutral photo effect almost resembles the camera's normal mode.

PHOTOGRAPH BY KRIS FONG

9

COMPANY: Canon
CONTACT: 800-652-2666,
www.powershot.com
PRICE: \$399

REQUIREMENTS: Power Mac,
Mac OS 8.6–9.2.x or OS 10.1 or
later, USB port

GOOD NEWS: Überportability. Beautiful, true-color images.

Good handling in low light. Fun video mode.

BAD NEWS: Problems with macro-mode focusing. No advanced features to graduate to. May feel awkward in big hands.

MacAddict RATED



GREAT



No One Lives Forever

FIRST-PERSON SHOOTER

Ah, the Cold War. Nobody really liked it—two dangerous world superpowers poised to blast each other (and the rest of us) off the map forever. But the Cold War spawned a whole new breed of books and movies: the spy thriller. And for that we owe it a debt of gratitude.

You know how the stories go—a full menu of action, wacky spy trinkets, kinky plots, sly dialogue, and bigger-than-life heroes.

And now, with *No One Lives Forever*, we can put tongue firmly in cheek and pay homage to those intrepid Cold War

“guys” who run UNITY, her organization, give all the good assignments to the men and send her on junk jobs—until the men start getting bumped off, one after another. Suddenly, there’s only good old Cate to save UNITY’s bacon.

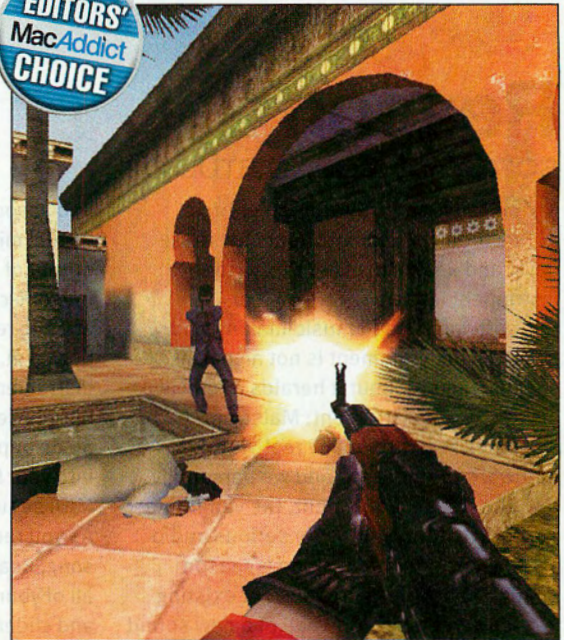
With style and hilarious humor, Cate is soon busy knocking off bad guys, stealing secret documents, rescuing hostages, and even taking on a freefall battle at 24,000 feet with an enemy who has the only available parachute. The winner, of course, floats peacefully to Earth. The loser makes a divot.

Cate’s colorful adventures span the globe, whisking her from England to exotic Morocco, underwater in scuba gear, through Germany, the American Northwest, the French Alps, and even into a secret Russian space station.

The weapons are fine, ranging from crossbows to grenade launchers. There’s even a laser weapon that vaporizes enemies. You can have tons of fun with the gadgets whipped up by a group called Santa and the Toymakers. You can pick locks with Cate’s barrette, make a blowtorch out of her cigarette lighter, spray sleeping gas from her perfume atomizer, and blow things up with lethal lipsticks.

This spy caper contains 15 single-player missions across 60 levels, with a fistful of deadly archvillains from HARM, the evil terrorist cabal. The original missions provide hours of riveting, enjoyable gameplay and truly funny dialogue. As a bonus, this Game-of-the-Year edition includes a new mission with four new levels in an active volcano.

Rabid game addicts will find some surprises as well. The enemy AI (the computer-controlled baddies) is remarkably robust. These guys don’t stand around and wait for you to pick ‘em off with a sniper rifle—they react to 11 stimuli,



Our heroine, Cate Archer, leaves a trail of dead bodies wherever she goes—Morocco included.

including flashlight beams, sounds, a trail of footprints in snow, and finding one of their own either dead or unconscious. When aroused, they fight tough and seek cover, trying to survive. Cate must either sneak past them or power through, shooting, stabbing, blinding, poisoning, even blowing them to bits. And they die well, responding to damage in 18 zones. They take headers from ledges, tumble down stairs, and do their best to crawl away if wounded.

Altogether, Cate stars in an excellent package, full of stylish locations, well-crafted dialogue, splendid voice talent, a strong plot, a campy dose of nostalgia, and wickedly wry humor. You’ll like this one.—*John Lee*



The well-dressed female spy should pack winter clothes for those late-night sojourns through the Alps.



My name is Archer. Cate Archer.

COMPANY: MacPlay
CONTACT: 214-855-5955,
www.macplay.com
PRICE: \$49.99

REQUIREMENTS: 350MHz
G3, Mac OS 10.1.4 or later,
128MB of RAM, 900MB of free
disk space, 8MB 3D video card

GOOD NEWS: Classic spy thriller with strong story and off-the-wall humor. Spiffy action. Slick graphics.

BAD NEWS: Older systems beware: Mac OS 10.1.4 required.

MacAddict RATED

AWESOME

Reason 2

SOFTWARE SOUND STUDIO

You can practically stuff an entire recording studio into your Mac these days, and Reason has led this virtual-instrument invasion. Version 2 of this software-based music-making and -recording environment is not an earth-shaking upgrade, but it heralds a radical new software instrument: Malstrom, a synthesizer without any real-world hardware counterpart (and we personally own the closest equivalent, the venerable Korg Wavestation A/D). For serious audio synthesists, Malstrom alone is reason enough to buy this software. For existing Reason owners, it's one hell of a new sound source in an already amazing program. Other important additions in this upgrade are full OS X compatibility and 24-bit

Reason is the best software-synth bargain.

sampled audio support—but Malstrom is the clear standout.

The idea behind Reason is simple—it provides a virtual equipment rack into which you can load various flavors of samplers, synthesizers, sound processors,

and associated peripherals. Virtual mixers combine the output of the many modules into one coherent whole, and the result is a massively powerful, multipurpose instrument that you can either use stand-alone or patch into your favorite MIDI sequencer. As you record a song, Reason records

all of your knob tweaking and slider sliding along with the audio, a capability that once inhabited the realm of only the most tricked-out recording studios. You can easily overcome Reason's main weakness—the lack of integrated sampled audio tracks—by loading vocals, sampled guitars, and whatnot via the existing sampler module. The new advanced sampler, the NN-XT, sports enhancements that reduce the need for external hardware samplers, such as layered sounds and velocity cross-fades between sounds. By pressing

a MIDI controller keyboard's keys harder or softer, you essentially control which sampled sound is playing. This delivers much more realistic renditions of acoustic instruments such as pianos and string sections.

The Malstrom Graftable Synthesizer is a breakthrough instrument that will rob you of many hours of sleep. The idea is novel: First you break up two sampled sounds into little granular chunks (imagine applying a visual particle system to a sound, dissolving it into granules of audio information). Next, stir in the ability to sweep through the sound granules, mix them together, have them

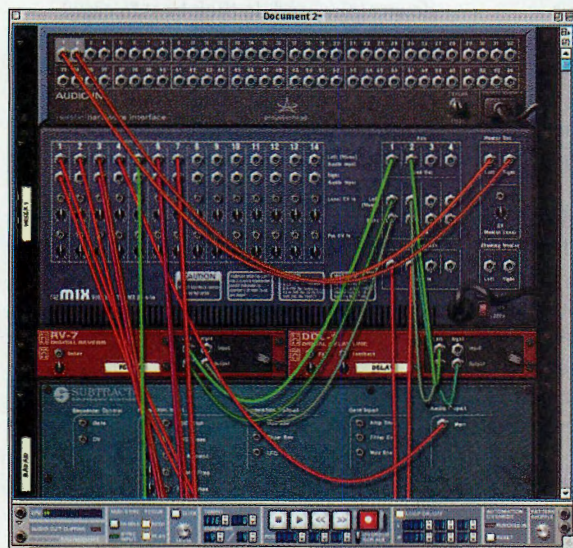


Reason 2's velocity cross-fading and enhanced key-mapping features are a welcome addition to the already excellent software sampler.

modulate one another, run the results through a healthy selection of filters and wave shapers, and you have a virtual instrument that doesn't sound quite like anything that actually exists in the real hardware synthesizer world. You can build entire songs around the output of this sonic beauty.

Hardcore synthesists will also appreciate the ability to take further advantage of LFO (Low Frequency Oscillator) as a synchronization source for a number of special-effects possibilities. For example, you can control the sweep rate of the Flanger via a master song LFO, making it much easier to create effects that complement and work with the tempo of a song. While this might seem like a minor enhancement, it's actually critical for precise songwriting and sound-crafting work.

The welcome addition of a dedicated eraser tool, as well as a zoom tool and a line tool (for drawing smooth ramps in windows such as an instrument's Velocity map) will make all existing Reason users happier, but you'll still likely want to keep your dedicated sequencing program (such as Apple's recently acquired Logic Audio) around for real work. That's just fine, because for \$399, Reason is the best bargain in software-based synthesis for anyone looking to set up a recording studio on the cheap.—David Biedny



When they say virtual rack, they're not kidding—press the Tab key to swing the whole rig around so you can inspect your patch cables.

COMPANY: PropellerHead Software
CONTACT: www.propellerheads.se
PRICE: \$399

REQUIREMENTS: Power Mac (G3 or G4 highly recommended), Mac OS 9 or later, 128MB of RAM, MIDI interface and keyboard

GOOD NEWS: Relatively inexpensive. Unique Malstrom Graftable synthesizer is awesome.
BAD NEWS: Still no dedicated sampled soundtrack. Could use a better-integrated sequencer.

MacAddict RATED
★★★★★
AWESOME

CorelDraw Graphics Suite 11

GRAPHIC-DESIGN SOFTWARE SUITE

Whether it's purse strings or principles that keep you away from the 800-pound gorillas of graphic software—Adobe Photoshop and Illustrator, and Macromedia FreeHand and Flash—Corel offers an alternative in the form of CorelDraw Graphics Suite 11, featuring CorelDraw for illustration, PhotoPaint for image editing, and RAVE for vector animation.

As unrepentant Illustrator users, we found the suite's namesake CorelDraw application difficult to navigate at first. Fortunately, you can reset the workspace to emulate Illustrator. In fact, there are options to reset all of the suite's applications to reflect common settings,

It's ideal for folks with modern hardware and modest imaging needs.

which should make your life easier if you're contemplating a switch to Corel from somewhere else.

We found CorelDraw and the other two applications a bit sluggish compared to their big-name competitors. Most of the suite's dialogs have an Apply button in lieu of a live-updating preview—despite the performance hit it would undoubtedly incur, we'd rather have the preview. Corel's native file format (CDR) supports multiple pages and good (but not great) text options, making the suite a passable desktop-publishing tool—just don't expect advanced features like hanging punctuation or multiple master grids.

Performance-wise, PhotoPaint was the most agreeable right off the bat; it behaved more or less as we'd expect of a bitmap image editor. It's also customizable right down to the appearance of the tool icons—don't like the way the Repeat button looks? Draw your own. This is admittedly a bit silly, but fun. PhotoPaint

supports about a zillion file formats (both import and export, including animated GIFs) and provides more tools than any ordinary person would ever need—fooling your Photoshop-snob friends has never been easier.

The animation program, mystifyingly called RAVE (which stands for Real Animated Vector Effects), has a gentle learning curve and is pleasant to use—except for the frequent beach-ball spinning on our pokey (500MHz G4) processor. In terms of interactivity it's pretty limited, as it lacks the sophisticated scripting provided by Macromedia's Flash. If you need more than a few buttons in your SWFs (Flash-format files), you might want to look at another program.

An unexpected bonus is the inclusion of CorelTrace, Corel's answer to Adobe Streamline (last updated in 1997) and to Macromedia's Trace Bitmap function in Flash. CorelTrace includes presets depending on what type of art you're working with, and offers more control over tracing than either of the other two programs, so it's a welcome addition to any digital artist's arsenal.

Also bundled with the primary apps suite are—count 'em—four CDs of supplementary goodies and widgets: 1,000 fonts, 10,000

clip-art images, and 1,400 photos in high- and low-res versions. Throw in Font Reserve 3.0 (a font manager) and OmniPage SE (for your OCR pleasure), and call it a party! The images are predictably fluffy, and a lot of the fonts are dupes or knockoffs, but we found a few gems. We especially appreciate the spiral-bound

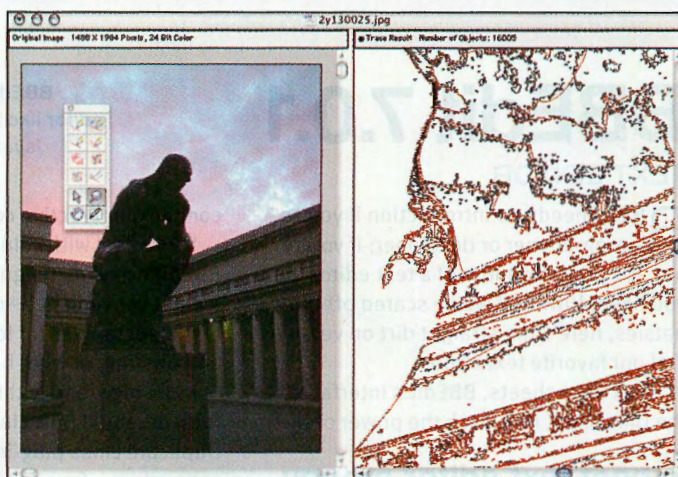


Sign language, cops, Canadian pride—it's gotta be clip art.

book that catalogs all the fonts, clip art, and photos.

As much as we'd like to see the existing graphics-software mafia shaken up, Corel makes a pretty timid advance with this suite—if you need the best graphics apps you can get, this ain't it. However, it's ideal for folks with modern hardware and modest imaging needs—and buying it won't require a second mortgage.

—Paul Yoon



CorelDraw headlines the suite, but CorelTrace is our favorite app—we love its pixel-level tracing abilities.

Vectorize It

Vector graphics, while useful for Web animation, are also ideal for images you need to scale up or down infinitely, such as logos. CorelTrace provides an easy way to get your bitmaps (be they digital photographs, scans, or doodles) into vector form, which you can then edit with CorelDraw and use in designs or animations. Unfortunately, CorelTrace isn't available as a stand-alone application.



After vectorizing the JPEG (left) we're ready to share this juicy porterhouse with our vegan friends. Thanks, CorelTrace!



COMPANY: Corel
CONTACT: 800-772-6735,
www.corel.com
PRICE: \$529

REQUIREMENTS: G3, Mac OS 10.1 or
later, 128MB of RAM

GOOD NEWS: Customizable. CorelTrace. Extras galore.
BAD NEWS: Processor and memory intensive. Most effects
lack a preview. Bewildering controls.

MacAddict RATED
●●●●●
SOLID

BBEdit 7.0.1

TEXT EDITOR

BBBEdit needs no introduction if you're a programmer or developer; if you're not, it's probably more of a text editor than you need. Now that we've scared off the patsies, here's the straight dirt on version 7 of our favorite text editor.

Shell Worksheets, BBEdition's interface to the Unix shell, now pack the power of the

BBEdit is just a text editor like the Macintosh is just a computer.



The best text editor money can buy.

superuser (sudo) so you can inflict System-altering commands without logging in as the root user—just click the big lock icon in the toolbar. Shell Worksheets have



also sprouted a status display, which shows the current active process, but they still can't handle

complex, interactive commands.

If you deal with column-based text, BBEdition's new rectangular text selection is a great convenience—now you can select text in rectangles for formatting, cutting and pasting, or what have you.

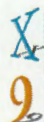
More high-end text mojo comes in the form of rebuilt Sort Lines and Process Duplicate Lines plug-ins, which now support grep (regular expression) filtering. Bare Bones has also overhauled the Glossary (a handy repository where you can store frequently used chunks of text for easy access). Once confined to a floating palette, the Glossary is now menu-driven and key-assignable, so you can select and insert Glossary items from the keyboard—no pointing or clicking required.

Web heads will appreciate that BBEdition is finally hip to multiple sites, so you can

use the program's HTML tools to create site-specific links and file paths on different sites. Also new is syntax coloring for ASP and VBScript, and the syntax checker now recognizes the XHTML 1.1 spec. Curiously, though, BBEdition still won't check the syntax of CSS (Cascading Style Sheets) markup.

BBEdition's new CVS (Concurrent Versions System) support lets you work on shared files without fear of overwriting your colleagues' work—but that's just icing on the cake. BBEdition is still the best all-around text editor money can buy.

—Niko Coucouvanis



COMPANY: Bare Bones Software

CONTACT: 781-687-0700, www.barebones.com

PRICE: \$179, \$49 upgrade from version 6.5, \$59 upgrade from version 6.1 or earlier, \$119 sidegrade from BBEdition Lite, GoLive, or Dreamweaver

REQUIREMENTS: G3,

Mac OS 9.2.2 or 10.1.5

or later (10.2.2 or later strongly recommended)

GOOD NEWS: CVS integration.

Supports multiple Web sites.

Rectangular text selection.

BAD NEWS: No CSS syntax checking.

MacAddict RATED



X-174

17-INCH TFT FLAT-PANEL DISPLAY

The LCD revolution is in full swing. The latest object of our flat-panel lust is AG Neovo's X-174, a 17.4-inch TFT LCD with a native resolution of 1,280 by 1,024 pixels, a high 400:1 contrast ratio, a fast 10/15ms pixel response time, and an array of source inputs on the back that can accommodate

RIP, CRT; the future is flat (panel), and we're so there.

clarity make it a joy to behold. On the downside, you might need to draw the curtains to prevent glare—the X-174's LCD screen is protected behind a solid-glass front that can pick up a wicked glare—especially if you don't keep it clean. Also, gamers will find this monitor a little sluggish for fast-action games; for general home entertainment, this thing blows the doors off your old TV, but you can do better in the flat-panel display market (we're still smitten with Formac's gallery 1740, but it costs over \$200 more than the X-174).

The X-174 provides a good price-to-pixel ratio: You can find cheaper LCDs that don't look as good and more expensive ones that look better. Those seeking an upgrade



PHOTOGRAPH BY MARK MADEO

to the home-entertainment nook should spend a little more on a faster display, but for general computing the X-174 looks great—and displays great too, as long as you keep it out of glare-inducing light.

—Niko Coucouvanis



COMPANY: AG Neovo

CONTACT: 408-321-8210, www.neovo.com

PRICE: \$729 (street)

REQUIREMENTS: Mac with VGA

or DVI video (or ADC with optional adapter) RTFM

GOOD NEWS: Great color.

Wide viewing angle. Stylish.

BAD NEWS: Glass face can cause glare.

MacAddict RATED



Bugdom 2

ACTION-ADVENTURE GAME

Sorry, folks. Bugdom 2 is overwhelmed with bugs. Er, come to think of it, that was the plan. And these bugs are charming.

Those clever guys at Pangea Software, creators of Macintosh games for more than 15 years, have a long and lustrous history of inventing colorful, charming diversions,

Bugdom 2 is even better than the original.

including Nanosaur, Cro-Mag Rally, Otto-Matic, and the smash hit Bugdom. Now comes Bugdom 2, with a new hero, new villains, and a whole new 3D world to



explore. And here's the real shocker: Bugdom 2 is even better than the original.

Flying a balsa-wood glider to escape killer cockroaches and biker houseflies? Only in Bugdom 2.

The story involves Skip, a young grasshopper who's out strolling when a sneaky Bully Bee swoops down and swipes his backpack. To get it back, Skip must search through yards, gardens, garbage, playrooms, closets, and sewers. Along the way, he'll get help from Sally the Chipmunk, who provides maps and checkpoints, and Sam the Snail, who hands out quests.

It's an exciting world. Skip will collect goodies, release trapped mice, fly a toy glider, bombard anthills, and all kinds of fun stuff. But it isn't easy. Enemies abound. While performing his heroic tasks, Skip must avoid giant lawn gnomes, flies in leather jackets, frogs with flicking tongues, fleas that chuck bottle caps, even cockroaches toting sewing-needle spears.



If cornered, Skip has two weapons. One is a series of carefully aimed leg kicks (grasshoppers, like ballet dancers, always have well-developed legs). The other comes in the form of Buddy Bugs that hover around your head until you press the Tab key to dispatch them against an enemy.

You can play this buggy beauty with a gamepad, mouse, or keyboard. But there's no tutorial, so read the instruction manual—otherwise you'll get stung.

—John Lee

COMPANY: Pangea Software

CONTACT: 512-266-9991,

www.pangeasoft.net

PRICE: \$34.95

REQUIREMENTS: 400MHz iMac DV or 266MHz Mac G3 or faster, Mac OS 9.x or OS 10.1 or later, 128MB of RAM, ATI Rage 128 graphics card with at least 8MB of VRAM

GOOD NEWS: Lots of bright, colorful levels. Available in box or by download. Fun for the entire family.

BAD NEWS: Controls may be a tad difficult for the very young.

MacAddict RATED



GREAT



Hearing is believing.

Macworld
**BEST
OF SHOW**
2 NOV 02

Sonica™

high-fidelity USB audio upgrade for Mac <
supports AC3 and DTS surround output <<
simple USB connectivity
24-bit/96kHz analog + optical digital outputs



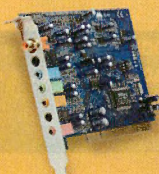
Sonica Theater™

only USB solution for surround up to 7.1 <
high-fidelity 24-bit/96kHz audio output <<
professional 24-bit/96kHz recording
real-time stereo-to-surround conversion



Revolution™

only PCI solution for surround up to 7.1 <
high-definition 24-bit/192kHz audio output <<
professional 24-bit/96kHz recording
real-time stereo-to-surround conversion <
Incredible 107dB SNR provides pristine audio



M-Audio's solutions deliver immersive surround sound on your Mac rivaling even the best movie theaters. Games, movies, and music—even your stereo CDs and MP3s—all sound more alive and intense with M-Audio surround solutions. Now you can enjoy high-definition 24-bit/192kHz audio fidelity and digital output of popular surround formats including Dolby Digital and DTS. And all this advanced technology is as easy to use as your Mac.

Only one name is found in more studios and used by more music professionals than any other: M-Audio. Now we've distilled all that experience into the highest-quality, easiest-to-use home surround sound solutions available.

Get M-Audio. Get M-Powered.

M-AUDIO®
www.m-audio.com/believe

Ultra Cordless Optical Mouse

IN-AIR MOUSE

Yeah, we know, big freakin' deal—another wireless optical mouse. Yawn. Who hasn't seen that?

OK, mister and miz mouse snob—this one's also got a dual-axis gyroscope

RSI sufferers, this thing is music to your wrist.

inside, so you can use it freeform in the air—no mouse pad or surface contact required. Cool!

In stylish black matte, it's long and lean like Apple's Pro Mouse, but longer and taller by about a half inch each way. The extra height accommodates a trigger-style

button on the underside, which you press to activate in-air mousing.

After years of traditional on-the-desk mousing, it feels a little weird to direct the cursor by waving your hand in the air, but if those years have made an RSI (repetitive-stress injury) victim out of you, this thing is music to your wrist. It's also great for presentations, and easily worked at the claimed 25-foot wireless range.

Being cordless, the mouse comes with a rechargeable (NiMH) battery pack, which is kind of a mixed blessing: We dig not having to futz around with conventional batteries, but now we've got the wireless transmitter and the charging dock contending for that



PHOTOGRAPH BY MARK MADEO

precious last free spot on our desk. A combo charger-transmitter would be smart. And while we're complaining, a second optical sensor in the mouse would be nice too—moving it too quickly across a surface causes the cursor to stutter a bit onscreen. The gyro action is surprisingly tight—we had to try pretty hard to make the mouse lose traction when using it in the air.

Even those of us with healthy wrists and no presentations to give are keeping this one around, because it works so well and in-air mousing is just plain cool.

—Niko Coucouvanis



COMPANY: Gyration
CONTACT: 800-316-5432,
www.gyration.com
PRICE: \$79.95

REQUIREMENTS: USB-equipped Mac,
Mac OS 8 or later

GOOD NEWS: Accurate in-air mousing. Good wireless range. Great alternative for RSI sufferers.
BAD NEWS: Average on-the-desk performance.

MacAddict RATED
●●●●●
GREAT

Nostromo n50 SpeedPad

GAME CONTROLLER

We've been hearing our *PC Gamer* friends down the hall rave about the Nostromo n50 SpeedPad for well over a year. Now the Mac drivers are out and it's our turn. The Nostromo packs a fistful of control into a wicked-cool-looking device that feels just right in the hand. And at \$30,

close at hand for easy access, and you can adjust the bulbous palm rest to accommodate bigger or smaller hands.

This pad is surely overkill for a game like Bugdom, but it looks so freakin' cool and fits so well in our sweaty gaming hand that we don't care (not to mention that overkill is our middle name when it comes to productivity-hindering gadgets). We were afraid the Nostromo's light weight would cause it to slide around the desk, but the antislip pads on the bottom kept it in place through a particularly intense Jedi Knight II session.

After we mapped the pad's keys to our standard keyboard-gaming keys (a simple point-and-click job via the included Nostromo Control software), we fired up some recent games (No One Lives Forever, Max Payne—even Quake III: Arena and



PHOTOGRAPH BY MARK MADEO

With this bad boy and a mouse, you'll be unstoppable (hand-eye coordination not included).

Unreal Tournament in OS 9). To our delight, the SpeedPad just worked. We've been using a regular keyboard-mouse setup for years, so the Nostromo-mouse combo took some getting used to, but getting those ten keys right where we want them (and sparing the wear on our regular keyboard) makes it totally worth the effort.

—Niko Coucouvanis

Now it's our turn.

it's cheaper than any of the games we've bought recently.

Plug it into a USB port and install the included driver software, and the SpeedPad puts ten keypad buttons at your fingertips, an eight-way directional pad under your left thumb, and a throttle wheel in between. We wouldn't necessarily call it ergonomic, but the Nostromo is comfortable to use—all the buttons are



COMPANY: Belkin
CONTACT: 310-898-1100,
www.belkin.com
PRICE: \$34.99 (\$29.99 street)

REQUIREMENTS: USB-equipped Mac,
Mac OS 9 or later

GOOD NEWS: Easy to configure. Easy to use.
BAD NEWS: Makes us waste even more time playing games.

MacAddict RATED
●●●●●
GREAT

ABS Plus

FIREWIRE BACKUP DRIVE

CMS's ABS Plus portable FireWire drives are the no-brainer way to back up your Mac. As is true of most everything, though, you have to pay for convenience.

The ABS Plus works like this: Install the bundled backup software and plug in the drive, and the Mac instantly scans your hard drive and backs up files according to your instructions. You have two options. You can use the Simple backup, a quick-

The backup software is pretty rudimentary. You can configure a reminder message, list files to exclude, and add volumes to include. That's about it, but the software worked consistently with no muss and no fuss. The 40GB FireWire drive comes in an attractive silver casing and weighs 7 ounces. CMS also offers 20GB, 30GB, and 60GB models.

The ABS Plus is bootable in both Mac OS 9 and Mac OS X. If you're running OS 10.2.x (Jaguar), make sure you have the latest version of the ABS software (it should be bundled in the box by the time you read this review), or you won't



PHOTOGRAPH BY MARK MADEO

The ABS Plus is pretty, convenient, and slightly expensive.

be able to boot from the drive.

Our only quibble was the ABS Plus's \$399 price. You can buy a comparable 40GB drive for about \$299 and add in Dantz's Retrospect Express 5.0 software for \$49.95. However, if you think convenience alone is worth that extra \$50, this product is for you.

—Narasu Rebbapragada

If convenience is worth \$50, this product is for you.

and-easy option that backs up all your files and apps, as well as most of your system files. Alternatively, you can customize your backup to exclude files you don't want.

COMPANY: CMS Peripherals
CONTACT: 800-327-5773 or
714-424-5520, www.cmsproducts.com
PRICE: \$399

REQUIREMENTS: Mac OS 8.6 or later,
FireWire port

GOOD NEWS: Easy to use. Stylish case.
BAD NEWS: Limited backup options. Expensive.

MacAddict RATED
SOLID

iData Pro X

PERSONAL INFORMATION MANAGER

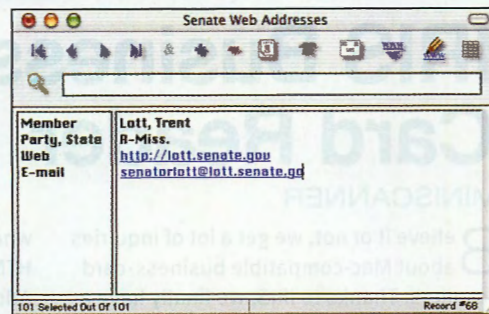
If you gave up on InfoGenie because of its lack of Palm connectivity and OS X support, you should know about iData Pro for OS X. If you've never heard of InfoGenie but need a basic database solution for your contacts, product serial numbers, or collection of dirty jokes, iData Pro's assorted functions might serve your needs.

The premise is simple: iData Pro works with free-form or field-based Datafiles, which it creates by importing data from several popular email programs, including Bare Bones Software MailSmith, Qualcomm Eudora, Apple Mail, Netscape Mail, and Microsoft Entourage. You can also import Netscape Bookmarks and Internet Explorer Favorites files, folders of

from scratch or build upon one of the on-board samples.

Navigating through a large Datafile is slightly tedious, even with iData Pro's snappy search engine and optional List View, which shows multiple records simultaneously. Unfortunately, in either List View or Basic View (the latter shows one record), iData Pro displays search results one at a time—a sorted results list would be handy when you're searching for an oft-repeated term. The Boolean And operator is available for more-refined searching.

Palm users can install the included iData Remote and iData Palm Conduit and take their Datafiles to go, and even synchronize Datafiles on the Palm with those on the Mac. The process was simple, and our test Datafile of 750 emails survived importing into iData Pro, as well as numerous back-



iData Pro comes preloaded with Datafiles—including House and Senate contact information.

and-forths with iData Remote on the Palm.

Additional features in iData Pro include a collection of editable templates for printing envelopes, a telephone dialer that dials numbers you highlight in a Datafile, and clickable in-file URL and email links (you can make these unclickable if you prefer).

iData Pro fills an odd niche—somewhere in between a FileMaker Pro-level database solution and Palm Desktop's various information-storing apps—but it fills that niche quite capably.—Niko Coucouvanis



text files, or character-delimited list files. Of course, you can also create a new Datafile

COMPANY: Casady & Greene
CONTACT: 831-484-9228 or 800-359-4920,
www.casadyg.com
PRICE: \$39.95, \$19.95 (upgrade from InfoGenie 1 to 2.x)

REQUIREMENTS: G3, Mac OS
10.1 or later, Palm Desktop 4.0
or later and HotSync Manager 3.0 or
later required for iData Remote

GOOD NEWS: Small and quick.
Easy to set up.
BAD NEWS: Cumbersome search results.

MacAddict RATED
SOLID

CitiDisk DV

DV-ENCODING FIREWIRE DRIVE

Transferring digital video from tape to hard drive is a real-time experience for most of us: Moving a 20-minute interview takes 20 minutes.

Battery-powered DV hard drives change all that. CitiDisk DV, like MCE's QuickStream DV (\$499, www.mcetech.com), can capture DV directly from most FireWire-equipped DV cameras—80 minutes' worth on the 20GB CitiDisk we tested. Now you can start editing as soon as you copy the files to your Mac—or you can edit them right off the CitiDisk, which also functions as a regular external hard drive. It looks like a regular drive as well, sporting a six-pin FireWire port, Power and Record buttons, a paperclip-accessible QuickErase button, and a socket for the

included DC power supply and battery charger.

Apple's QuickTime Pro and Final Cut Pro 2 and 3 can work directly with CitiDisk's files, although we had to render the audio tracks (a quick and easy task) when using Final Cut Pro 3. Other editing platforms are almost as compatible: Avid Express DV 3.5 and Apple iMovie users must first import the DV files into the respective app, but this is much faster than converting raw footage to editable DV, so you still win.

Once the DV stream begins flowing, the drive captures everything the lens sees, even if you pause the camera. Capturing to disk stops only when you press the drive's



PHOTOGRAPH BY MARK MADEO

This unassuming little FireWire drive can suck DV straight out of a camera, saving you buckets of time.

Record button a second time. The company says it's working on a firmware upgrade that will allow the drive to take record-pause commands directly from a camera.

DV-capturing hard drives can save you tons of conversion time. Once the technology matures and becomes cheaper and easier to use, we'll be all over this stuff.—*Tom Lassiter*

COMPANY: Shining Technology

CONTACT: 714-761-9598,

www.shining.com

PRICE: \$599

REQUIREMENTS: FireWire-equipped

Mac, FireWire-equipped DV camera,

Mac OS 9 or later

GOOD NEWS: Saves tons of time over traditional DV encoding.

BAD NEWS: Doesn't recognize camera's record-pause button (yet).

MacAddict RATED



IRIS Business Card Reader

MINISCANNER

Believe it or not, we get a lot of inquiries about Mac-compatible business-card scanners. Thanks to IRIS, we finally have a better answer than "get a PC-compatible card scanner and Virtual PC"—but it's only a marginally better solution.

The IRIS Business Card Reader is smaller than your Rolodex and draws its power through the USB bus, so it's clearly a space-saver compared to flatbed scanners. But scanning is the easy part. Getting the information into a usable format (i.e., editable text on your Mac) is the tricky part. That's why the IBCR comes with Readiris Pro 7, one of the oldest names in OCR (optical character recognition), which fishes the text off the card and does its damndest to get the information

where you want it—such as text or HTML files, or contact files in Apple's Address Book or Microsoft Entourage.

Setting up the scanner is simple: Install the included scanner driver and Readiris software, plug in the device, slide in a business card, and if the gods are smiling on you, behold the latest addition to your contact database. More likely, prepare to do a little typing, as the recognition is significantly less than magic. Out of a stack of 25 cards, all but 6 required intervention; our Readiris-generated Address Book entries spanned the spectrum from perfect to perfectly empty. As you might guess, the software worked best on the plainest cards; snazzy logos, fancy color gradients, and funky type are

Time to fire the data-entry monkey: This little doodad turns business cards into digital files.



PHOTOGRAPH BY MARK MADEO

not friends of the IBCR.

Unless you're seriously pinched for desktop space, or plan on scanning cards live at a tradeshow, skip the reader and use Readiris Pro Business Edition (\$139 at www.irisusa.com) with your regular flatbed scanner. The software happily accommodates multiple-card scans, which it reliably separates into individual card files. The Business Card Reader doesn't make the process any quicker, easier, or more accurate.—*Niko Coucouvanis*

COMPANY: IRIS

CONTACT: 561-395-7831, www.irisusa.com

PRICE: \$199.99

REQUIREMENTS: G3, Mac OS 9.x

or later, USB port

GOOD NEWS: Yay, a business card scanner!

BAD NEWS: Who really needs a dedicated business card scanner?

MacAddict RATED



MacWireless 802.11b PC Card

PCMCIA-AIRPORT CARD

Who says you can't teach an old dog—or an old PowerBook—new tricks? If you've got a PCMCIA-ready PowerBook and an AirPort jones, MacWireless has your fix—its 802.11b PC Card works on PowerBooks back to the 190 series.

The card supports 64- and 128-bit encryption, and in a G4 PowerBook it allowed us to stray farther from the AirPort Base Station than the AirPort card did—though not much.

The included driver is simple to install, and the MacWireless control panel lets you connect automatically to the best available network, pick from a list, or create an ad-hoc network to another computer. The catch? There's no Mac OS X support yet, but the company says it's working on that.—*Niko Coucouvanis*



Make your old Mac wireless with MacWireless.

COMPANY: MacWireless
CONTACT: 510-848-7126,
www.macwireless.com
PRICE: \$89.98

REQUIREMENTS: PowerBook with PCMCIA slot, System 7.5.5–Mac OS 9.x

GOOD NEWS: Good range. Supports Macs that don't have AirPort cards.
BAD NEWS: No Mac OS X support yet.

MacAddict RATED
●●●●●
SOLID

Bonzai USB Mini-Drive

USB FLASH DRIVE

Back in the heyday of the floppy drive, transporting digital files was a no-brainer—unless those files exceeded a floppy disc's

1.4MB capacity. These days, USB flash drives enjoy the same ubiquity, and the Bonzai sweetens the deal with write protection, removable media, and a 3-foot-long USB extension cord.

It's a bit bulkier than other flash drives we've seen, but the Bonzai's upgradability is certainly worth a few extra centimeters. When we outgrow our 64MB unit, we'll just pop it open and install a new MultiMedia Card or SecureDigital card and wallow in up to 512MB of portable memory.

As with any flash or USB drive, transfer speeds are painfully slow—otherwise, the Bonzai fits right in with our on-the-go digital lifestyle.—*Niko Coucouvanis*



This little plug replaces 44 floppy discs.

COMPANY: SimpleTech
CONTACT: 800-367-7330 or
949-476-1180, www.simpletech.com
PRICE: \$64.80

REQUIREMENTS: USB-equipped Mac, Mac OS 8.6 or later

GOOD NEWS: Upgradable. Portable.
BAD NEWS: Slow.

MacAddict RATED
●●●●●
SOLID

MacWireless 802.11b USB Adapter

USB-AIRPORT ADAPTER

Wireless networking is the best thing since, well, ever. You can quote us on that. Once the exclusive domain of PowerBook and iBook users, AirPort and its underlying 802.11b wireless protocol also work great on the desktop. All current Macs ship with the requisite AirPort card adapter and antenna, but that leaves plenty of G3s

not kidding—after restarting, we launched the MacWireless USB control panel, and its status bar indicated that we were already on the local AirPort network. The driver automatically connects to the strongest network signal in range; it can also scan your airspace for networks to which you can connect manually; or you can create an ad hoc network with another 802.11b-equipped computer.

We hooked the bus-powered adapter to a G4 PowerBook, took it for a stroll, and found its range slightly longer than that of the PowerBook's AirPort card. Strangely, though, the signal bars indicated that the AirPort card's signal was stronger than the USB adapter's until the card dropped off. After that, the USB adapter clung to the network for another 10 feet or so.



802.11b over USB—why didn't we think of this?

Our only gripe with the 802.11b USB Adapter is a big, deal-killing one: It doesn't work in Mac OS X—yet. Once MacWireless makes good with the promised drivers, this'll be a truly awesome widget.—*Niko Coucouvanis*

COMPANY: MacWireless
CONTACT: 510-848-7126,
www.macwireless.com
PRICE: \$109.98

REQUIREMENTS: USB-equipped Mac, Mac OS 9.0.4–9.2.2

GOOD NEWS: Finally, wireless from the desktop.
BAD NEWS: No Mac OS X support yet.

MacAddict RATED
●●●●●
GREAT

theHotList

THE BEST OF THE BEST FROM RECENT REVIEWS

SOFTWARE

AUDIO

MOTU Digital Performer 3	\$795.00	Feb/02, p58	Pro audio app has a great array of features.
Roxio Toast with Jam 5	\$189.95	Sep/02, p49	Burn CDs, MP3 CDs, DVDs, and VCDs; edit audio.

GAMES

Ambrosia Escape Velocity: Nova	\$30.00	Sep/02, p48	Enjoy the perverse thrill of galactic domination.
Aspyr Clive Barker's Undying	\$39.95	Nov/02, p50	Sophisticated shooter has a sophisticated story line.
Aspyr Jedi Knight II: Jedi Outcast	\$49.95	Feb/03, p37	Fantastic gameplay with both weapons and the Force.
Aspyr Medal of Honor: Allied Assault	\$50.00	Oct/02, p43	WWII first-person shooter is a surefire classic.
Aspyr Return to Castle Wolfenstein	\$49.95	Aug/02, p42	What's more satisfying than killing zombie Nazis?
Aspyr The Sims Hot Date	\$29.95	Sep/02, p46	The Sims obey Petula Clark and go downtown.
Aspyr The Sims Vacation	\$29.95	Jan/03, p45	Not the best, but a must-have for the dedicated Sims fan.
Graphic Simulations Black and White	\$50.00	Jun/02, p54	The battle between good and evil can really be a blast.
MacPlay Icewind Dale	\$49.99	Aug/02, p51	Beautifully rendered RPG offers deep gameplay.
MacSoft Max Payne	\$40.00	Dec/02, p42	Max seeks revenge—and gets plenty of it in this FPS.

GRAPHICS AND LAYOUT

Adobe InDesign 2.0	\$699.00	May/02, p50	Look out, Quark—Adobe's rival layout tool kicks butt.
Adobe Photoshop 7	\$609.00	Jul/02, p46	Picture-perfect pixel pusher moves to Mac OS X.
Adobe Photoshop Elements 2	\$99.00	Dec/02, p40	It has most of Photoshop's power for \$500 less.
Macromedia Dreamweaver MX	\$399.00	Sep/02, p44	Our favorite Web-design tool gets a strong upgrade.
Macromedia Flash MX	\$499.00	Jul/02, p51	It started in animation; now it can do anything.

PRODUCTIVITY AND UTILITIES

Dantz Retrospect Express 5.0	\$79.00	Aug/02, p50	Indispensable backup software goes Mac OS X.
Microsoft Office v. X	\$499.00	Feb/02, p42	The 800-pound gorilla of productivity applications.

VIDEO AND ANIMATION

Adobe After Effects 5.5	\$649.00	May/02, p49	Motion-graphics stud improves its 3D powers.
Apple DVD Studio Pro 1.5	\$999.00	Oct/02, p55	Apple's essential DVD-burning app gets even better.
Apple Final Cut Pro 3	\$999.00	Apr/02, p45	Pro-level video editor is a real-time revelation.
Discreet Combustion 2	\$995.00	Jun/02, p46	Sometimes the best is expensive—but worth every penny.
Electric Image Universe 4.0	\$995.00	Jun/02, p58	There's a reason why this is <i>the</i> 3D app: It's great.

HARDWARE

AUDIO

Apple 20GB iPod	\$499.00	Nov/02, p45	More storage, cool accessories—it's all good.
Digidesign Mbox	\$495.00	May/02, p59	Audio interface is a travelling musician's delight.

DIGITAL CAMERAS

Nikon Coolpix 885	\$549.99	Feb/02, p61	Cute, capable camera captures great images.
Olympus C-4000 Zoom	\$499.00	Jan/03, p52	Great image quality, 4 megapixels, and versatile controls.

DISPLAYS

Apple Cinema HD Display	\$3,499.00	Aug/02, p40	This 23-inch, 1,920-by-1,200-pixel beauty inspires lust.
Formac gallery 1740	\$899.00	Mar/02, p49	Advanced-technology LCD display comes cheap.
Formac gallery 2010	\$1,699.00	Jan/03, p47	Bright, fast, and huge—and it costs only \$.0009 per pixel.

PRINTERS

Brother 1870N	\$699.00	Aug/02, p45	Need a sturdy laser printer? This one's a workhorse.
Epson Stylus Photo 2200	\$699.00	Oct/02, p42	The most stunning photo printer we've ever tested.

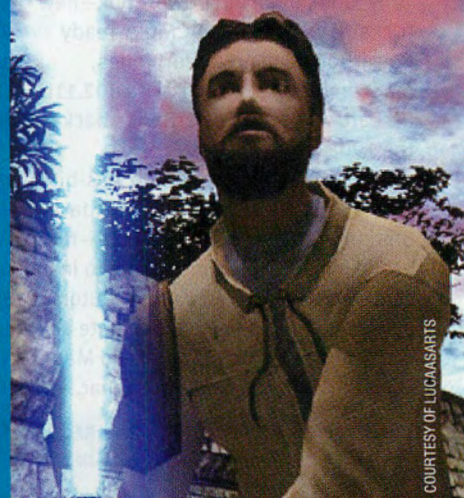
SCANNERS

Canon CanoScan LIDE 30	\$99.00	Nov/02, p52	Entry-level scanner gets the job done inexpensively.
Epson Perfection 2450 Photo	\$399.00	Oct/02, p48	Sophisticated scanner also handles transparencies.

STORAGE

Maxtor Personal Storage 5000XT	\$399.99	Feb/03, p44	Solid construction, push-button backup, and 250GB.
OWC Mercury Elite 160GB	\$349.95	Sep/02, p53	Handsome, sturdy drive is whisper quiet.
TDK veloCD	\$315.99	Jul/02, p54	FireWire-equipped CD-RW drive is freaky fast.
WiebeTech MicroGB 40GB	\$399.95	Jul/02, p56	Cool aluminum FireWire hard drive holds speedy innards.

Fighting with lightsabers may be fun, but there's nothing quite like the Force.



COURTESY OF LUCASFILMS

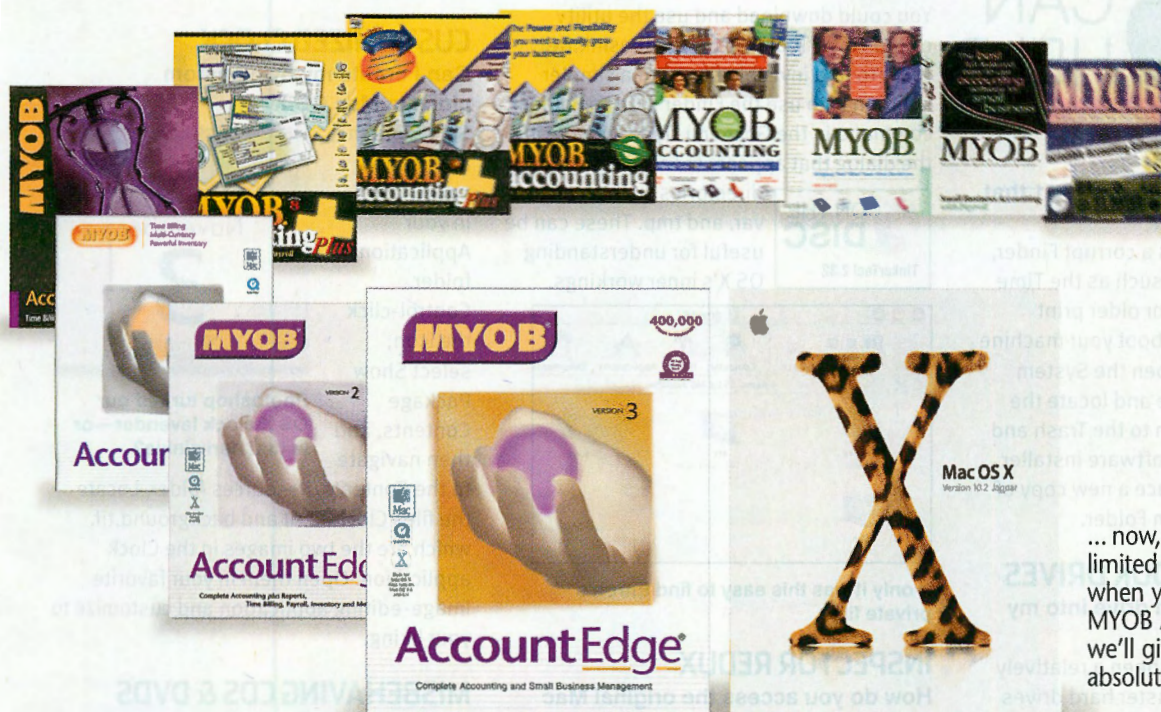
NEW THIS MONTH:

Jedi Knight II: Jedi Outcast

Aspyr
\$49.95
Feb/03, p37

This game's got it all: familiar characters, soul-stirring music, fabulously intricate graphics, immersive gameplay—and, if that weren't enough, the telepathic, telekinetic, all-powerful Force. Join ex-Jedi and mercenary-with-a-heart Kyle Katarn as he fights evil with good—a good ol' lightsaber, that is—in his quest to rid the universe of bad guys. In addition to the aforementioned Force, you also have at your disposal an imperial ATST walker, obedient droids, deadly drones, and a fully satisfying arsenal of guns 'n' stuff. As reviewer Chris Imlay said, Jedi Knight II: Jedi Outcast is "the best *Star Wars* experience since the original film."

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60 HOW TO

because inquiring minds have the right to be inspired

GOT A QUESTION?
NEED ADVICE?

ask us WE CAN HELP

ERROR TYPE -41

How can I fix the system error -41 that occurs during startup?

In OS 9, error -41 signals a corrupt Finder, caused by many factors such as the Time Synchronizer extension or older print drivers. To fix this error, boot your machine from your System CD. Open the System Folder on your hard drive and locate the Finder file. Drag this item to the Trash and then rerun the System Software installer from the CD. This will place a new copy of the Finder in your System Folder.

BIGGER POWERBOOK DRIVES

Can I put a larger hard drive into my PowerBook G4?

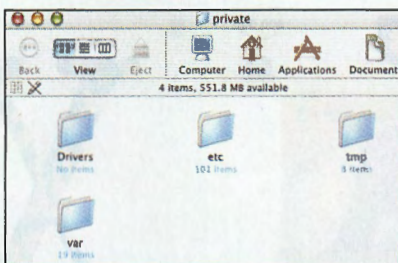
Yes, you can. It has long been a relatively unadvertised fact that faster hard drives really do make your computer run faster. Most portable drives spin at 4,200 rpm, while most desktop drives run at 5,400 or

7,200 rpm, so if you are going to put a larger drive in your PowerBook G4, you might as well make it a faster one too. We'd put our money on the 60GB IBM Travelstar 60GH (\$379 street, www.storage.ibm.com), which spins at 5,400 rpm and uses IBM's Pixie Dust technology for packing lots of storage in small spaces. Who doesn't want a little pixie dust?

REVEALING INVISIBLE FILES

How can I access invisible Unix files in the Finder?

You could download and use the utility called TinkerTool (free, www.bresink.de/osx) to find invisible files, but a simpler solution is to use the Finder's Go To Folder command in the Go menu. Type `/private` in the dialog that appears for access to hidden directories such as `etc`, `var`, and `tmp`. These can be useful for understanding OS X's inner workings.



If only it was this easy to find Enron's private files.

INSPECTOR REDUX

How do you access the original Mac OS X File Inspector in OS 10.2?

The original Mac OS X used a different Get Info window called the Inspector. The

Inspector showed the same information as an OS 9 Get Info window. The window remained open while its contents changed as you highlighted different Finder files and folders. As a result, you couldn't open two Inspector windows simultaneously, making it difficult to compare two files. Apple fixed this problem in OS 10.2 by reintroducing multiple Get Info windows. However, you can still access the original Inspector by holding down the Option key while opening the File menu; the Get Info command turns into the Show Inspector command.

CUSTOMIZED CLOCK

Can I create my own custom clock in Mac OS X?

Sure. Find the application called Clock in your Applications folder.

Control-click the icon, select Show Package Contents, and then navigate

to the Contents/Resources folder. Locate the files `Clock02.tif` and `background.tif`, which are the two images in the Clock application. Open them in your favorite image-editing application and customize to your liking.



Photoshop turned our OS X clock lavender—or is that periwinkle?

MISBEHAVING CDS & DVDS

Why does my Mac launch Disk Copy when I insert a blank CD-R?

Starting with OS 10.2, the CDs & DVDs



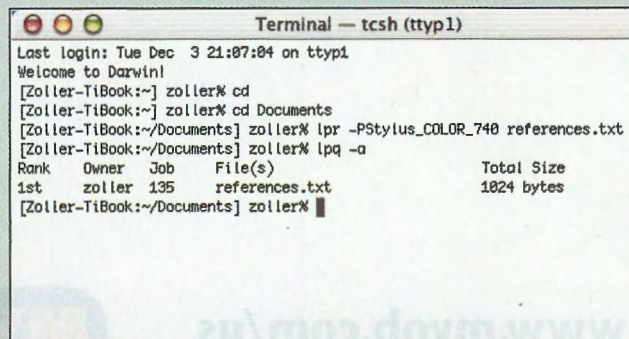
UNIX UNIVERSITY Your Monthly Dose of Unix Instruction

COMMAND-LINE PRINTING

Can I print from the Terminal?

You can print with command lines, but it's hardly intuitive. The following line prints a file called `references.txt` to an Epson Stylus Color 740: `lpr -PStylus_COLOR_740 references.txt`

It is important to put the `-P` (capitalized) in front of the name of your printer and to use the underscore character (`_`) where your printer's name has spaces. You can get your printer's queue name from the Print Center by choosing the printer from the Printer List window and then choosing Show Info from the Printers menu. Better yet, type `lpc status` in the Terminal to see a list of your printers. If you want to see your work in action, keep the Print Center open and watch the job appear in the Printer List.



Printing from the Terminal is doable, but it's not pretty.

DIFFICULTY RATINGS

EASY

No whining—
anyone
can do this!

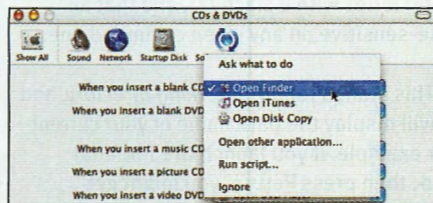
TRICKY

It'll take some
effort, but you
can do it.

TOUGH

This stuff's
for the pros.

system preference lets you specify what happens when you insert a blank CD-R into the Mac. In your case, your blank CD preference reads Open Disk Copy instead of Open Finder, which puts the CD-R icon on your desktop.



The CDs & DVDs system preference tells your Mac what to do with blank media.

TARGET DISK PRACTICE

How do you use Target Disk Mode?

This is a great feature for transferring data from a PowerBook to a Power Mac. Essentially, Target Disk Mode turns one FireWire-equipped Mac into an external FireWire hard disk for use with another FireWire-equipped Mac. To use this feature, connect two Macs with a 6-pin-to-6-pin FireWire cable. Shut down the target computer (the one you want to turn into a hard disk) and start it up



Look, a FireWire drive!

while holding down the T key. You'll see a blank screen with a large dancing FireWire symbol. The host (the other computer) will display an icon representing the target's hard disk. You can now treat the target computer as a hard drive. You can use Target Disk Mode on any Mac with built-in FireWire, except for Blue-and-White G3s and first-generation Power Mac G4s.

BAG THE MOUSE PAD

Do I need a mouse pad for my new optical mouse?

No. In fact, your optical mouse won't work properly on most printed mouse pads or glossy surfaces. The reason is that an optical mouse works by shining a beam of light onto a surface underneath. It then takes a series of pictures, 1,500

per second, and analyzes the changes in them to determine the direction and speed of the mouse's movement. The mouse then transmits this information to your computer, which creates a smoothly moving cursor on your screen. Because the optical mouse is analyzing minute visual data, it works best on a solid-color, nonglossy surface.

DAMN RAM, THANK YOU MA'AM

I installed RAM in my new Mac, and now Mac OS X crashes during startup. Booting into Mac OS 9, however, works perfectly. What gives?

Mac OS X is a RAM-consuming monster that uses every block of available RAM. Bad RAM that may be acceptable in OS 9 is unusable in OS X. Failing or failed RAM modules are the culprits in many OS X crashes and freezes. Most RAM vendors are glad to swap bad RAM modules for good ones. You should take them up on their offer, since bad RAM can wreak havoc on an otherwise sound OS X installation.

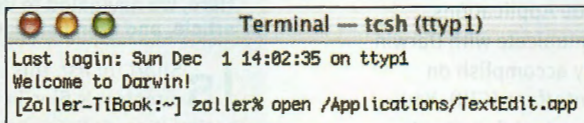
LAUNCH APPS FROM THE TERMINAL

How do you launch an application from the Terminal?

Use the Open command, followed by the path to the item. Here's the command line for opening the TextEdit application:

```
open /Applications/TextEdit.app
```

If you don't know the full path name, simply drag the item's icon from the Finder window into the Terminal window. This action will fill in the entire path and file name. Make sure you put a space between the command and the path.



Open sesame...or, in this case, TextEdit.

Submit technical questions or helpful tips directly via email (askus@macaddict.com) or c/o MacAddict, 150 North Hill Dr., Brisbane, CA 94005.

Six years of tech support for Apple, Power Computing, and a Texas school district have given Buz Zoller Mac superpowers.

ThisMonth

62 Access Your Mac with the Terminal

Darwin is all about evolution, and so today, dear Unix-phobes, begins your journey to a new way of interacting with your Mac. If you haven't met the Darwin side of OS X, here's a friendly introduction.



68 Turn Your Old Power Mac into a Digital Hub

Digital cameras, iPods, and DV cameras are fun to play with—if you've got a Mac that plays nice with them. If your beige Power Mac is feeling left out in the cold, we show you how to bring it into the 21st century.

71 Hijack the Poof

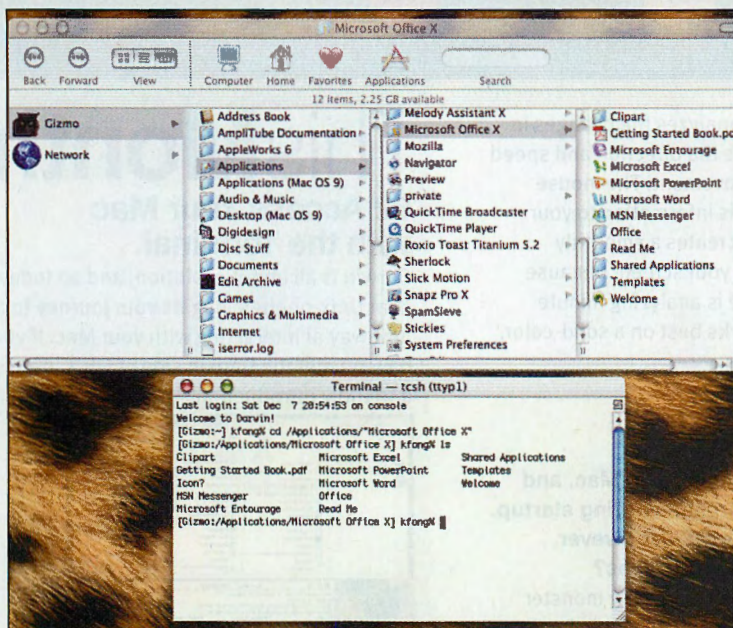
There are more ways to kill an app icon than to just throw it off the Dock and see it go up in a poof of smoke. Drown it, annihilate it with a lightning bolt, set it on fire—oh, the possibilities!



72 Customize an Application's Splash Screen

We can think of better things to look at than Word's gummy dubya or Mozilla's gastronomical lizard boy each time we launch the apps. If you feel the same, customize your own app screens.





The lands of Aqua and Darwin: No matter which way you prefer to look at your Mac, you can dance around your system fairly swiftly.

Access Your Mac with the Terminal

by Mary E. Tyler

What have you got to fear? It's just a dumb terminal. Anyone who worked with computers in the years BPC (before PCs) remembers using this term to refer to the classic terminal—a processorless monitor and keyboard that connected to a mainframe or minicomputer. These ancient devices allowed users to access and manipulate the data stored on computers by typing command lines.

These days, it still takes a smart cookie to use the dumb terminal, which functions the same way but now takes many different forms as a command-line program on all major operating systems. On Mac OS X, we have the Terminal, which lets us interact with Darwin, OS X's core Unix operating system based on BSD (Berkeley Software Distribution). For those of you who haven't yet set eyes on it, you'll find the Terminal app in the Utilities folder inside Applications.

The Terminal lets the intrepid Mac user communicate with Darwin underpinnings to do many tasks you'd normally accomplish on OS X's Aqua side—the familiar graphical user interface (GUI). You can perform simple tasks, such as finding files or text documents that contain a certain phrase, and more-complex tasks, such as controlling another Mac remotely. Then again, trying to edit a digital photo using the Terminal is probably not the smartest—or easiest—thing to do.

Though there are a few fervent command-line connoisseurs, where the Terminal is concerned, the average Mac user probably has more curiosity than hard-core knowledge. That's where we come in. Here, we familiarize you with the basics of the Terminal and show you a few Unix commands and how and when to use them. We'll also show you how to use the Terminal to find files by content and create a file that lists pertinent info, and how to control and reboot a Mac remotely.

GET A GREP

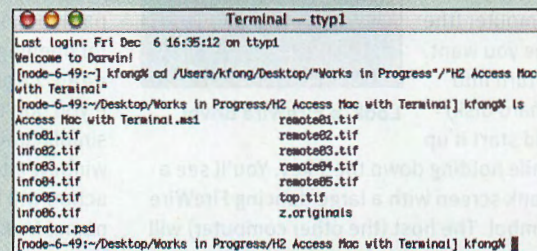
Terminal Terminology Simplified

by Mary E. Tyler and Kris Fong

To get you more familiar with Unix, here are some common commands used in the Terminal. Keep in mind that you should separate commands with a space and directories with a slash (/), and that all syntax is case-sensitive on any given command line.

pwd This stands for *print working directory*, and will display the path name of your current directory. For example, if you launch the Terminal and type **pwd**, then press Return, you might get **/Users/bubba** if your name happens to be Bubba and you're logged on as yourself. The first slash (/) in the path represents the root directory, and a slash separates subsequent directories. The last name listed is your current working directory—in more familiar GUI terms, if you clicked the Home icon in a Finder window, your current directory would be your user folder, or in Darwin terms, **/Users/your user name**.

cd This command means *change directory*. Typed by itself, **cd** takes you to your own user directory (folder). If you add a path name to the command—for example, **cd /Users/barney**—the Terminal changes the working directory to the user **barney**. If you type **cd /Applications**, the directory changes to the Applications folder. If a directory name contains spaces, wrap the name in quotes, as in **cd /Users/bubba/Pictures/"iPhoto Library"**. Use this command to navigate to folders.



Here, we navigated to the folder that contains this article, and then listed its contents.

ls Short for *list*, this command lists the current directory's files in the Terminal. Adding the **-a** option (**ls -a**) lists all files, including invisible ones. Adding the **-l** option (**ls -l**) lists long information about files, including permissions, ownership, file size, and modification date. If you want to, say, view a simple list of your apps, type **cd /Applications** and press Return to go to the Applications directory (folder), then type **ls** and press Return to list the apps within it.

grep This command calls up **grep**, a search program similar to the Find command on OS X's Aqua side. You can use it to find files by name or by content; **grep** searches the file system and returns lines that match a pattern specified by the

syntax on the command line. For example, typing `ls -l | grep "Feb 14"` will list the long information of every file in your current directory that was last modified on Valentine's Day.

top Typing this command gives you a live display of all your currently running system resources and processes, as well as their system-use status. You can view the statistics in different ways by adding an option to the command. For example, if you type `top -u`, the biggest processor hog will appear at the top, followed by the rest in ranking order. If you only want to see, say, the top five processor hogs, type `top -u 5`.

sudo

This potentially dangerous command, short for *superuser do*, allows you to execute a single command as the root user. As the root you're more powerful than an administrator, and you can access and tweak any part of OS X—and possibly kill it if you don't know what you're doing. You must be an administrator to invoke the **sudo** command. It's mostly used to access permissions and ownerships or perform tasks reserved for the root.

```

Terminal — ttty1
Welcome to Darwin!
[kfong% top -u 10

 0 kernel_tas  1.5%  4:34.15  27  0  -  -  -  -  23.3%  257M
448 Adobe Phot  1.6% 22:33.99  5  86 1188 59.8M 28.4M 63.5M 31.3M
Processes: 53 total, 2 running, 51 sleeping... 130 threads  14:17:57
Load Avg: 0.81, 0.88, 0.68  CPU usage: 34.7% user, 11.6% sys, 53.7% idl
SharedLibs: num = 42, resident = 12.5M code, 672K data, 3.22M LinkEdit
MemRegions: num = 4757, resident = 118M + 4.91M private, 66.8M shared
PhysMem: 31.2M wired, 135M active, 77.6M inactive, 244M used, 12.4M free
VM: 1.85G + 34.8M 13656(0) pageins, 23158(0) pageouts

PID COMMAND          CPU    TIME    #TH  #PRTS  #REGS  PRVPT  RSHRD  RSIZE  VSIZE
445 Microsoft  24.8% 47:03.18  5  133  368  22.2M 17.0M 31.9M 114M
514 top        11.6% 0:02.46   1  14   18  244K  244K  548K 13.6M
449 Terminal   3.3% 0:48.41  5  87  181  2.48M 6.11M 7.26M 45.1M
448 Adobe Phot  2.4% 22:34.02  5  86  1188 59.8M 28.4M 63.5M 31.3M

```

System slowing down? Just type `top -u 10` to get an up-to-the-second stat reading on your top ten CPU hogs.

kill Typing this command kills a process. 'Nuff said.

ssh If you need to send private stuff over a network, this command runs a secure shell (SSH), which uses encryption to protect data in transit. Typing **ssh** instructs OS X to use SSH when connecting to a server.

This command is the pipe (the vertical bar key usually located under the Delete key). It pipes the output from one command to the next.

The back-tick command (to the left of the 1 key on an Apple keyboard), aka command substitution, uses the result of one command as an *argument*, an option or switch that you add when invoking programs. In other words, it takes the output of a command and inserts it back into the command line.

The greater-than sign is the write file operator command, and will create a new file or overwrite an existing one. It takes the results from the commands and arguments that precede it, and writes the data to a file named as whatever you type after the command. For example, if Applications is your current directory, typing `ls > MyApps.txt` will create a text file called "MyApps.txt" that contains a list of all your apps.

```

Terminal — ttty1
Last login: Fri Dec 6 11:45:58 on ttty1
Welcome to Darwin!
[kfong% ls
Desktop  Icon?   Movies  Pictures Sites
Documents Library Music    Public
[kfong% cd /Users/kfong/Music/iTunes
[kfong% ls
iTunes 3 Music Library  iTunes Music Library  iTunes Music Library.xml
iTunes Music  iTunes Music Library (2)
[kfong% cd /Users/kfong/Music/iTunes/"iTunes Music"/"Linkin Park"/"Hybrid Theory"
[kfong% ls
[kfong% ls > SongList.txt
[kfong%

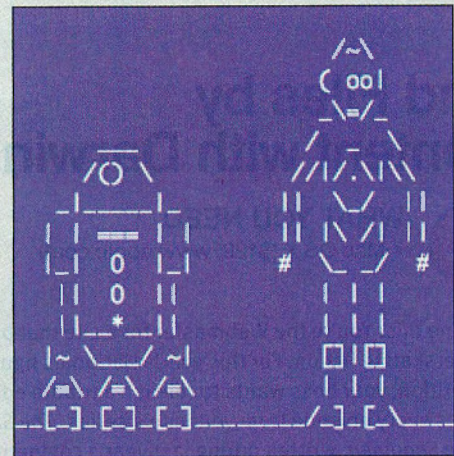
```

Here, we used the operator to create a file that contains a list of every song on Linkin Park's *Hybrid Theory* album.

```

01 Papercut.mp3
02 One Step Closer.mp3
03 With You.mp3
04 Points Of Authority.mp3
05 Crawling.mp3
06 Runaway.mp3
07 By Myself.mp3
08 In The End.mp3
09 Place For My Head.mp3
10 Forgotten.mp3
11 Cure For The Itch.mp3
12 Pushing Me Away.mp3

```



Star Wars ASCII-style—launch the Terminal, type `telnet towel.blinkenlights.nl`, and press Return. Wait a few seconds for the server log-in, and then you'll be transported to a galaxy far, far away (grab some popcorn).

TERMINAL LAUGHTER

WHY WE LOVE UNIX GEEKS

by Kris Fong

Using the Terminal is like eating rice cakes while everyone else gorges on chocolate éclairs—it's not the most elegant thing, but it generally won't weigh you down in system processes (whether they be computational or digestive) in the end. Despite the Terminal's plain exterior, you can have some good fun in the land of Unix thanks to the prevailing winds of geek humor. Even if you're not daring enough to take on the Terminal, these two fun oddities will surely amuse you (you'll need an Internet connection).

```

Terminal — tcsh (ttty1)
Last login: Fri Dec 20 14:08:16 on ttty1
Welcome to Darwin!
[kfong% emacs -batch -l dunnet

Dead end
You are at a dead end of a dirt road. The road goes to the east.
In the distance you can see that it will eventually fork off. The
trees here are very tall royal pales, and they are spaced equidistant
from each other.
There is a shovel here.
pick up shovel
I don't understand that.
stake shovel
Taken.
>go east
E/W Dirt road
You are on the continuation of a dirt road. There are more trees on
both sides of you. The road continues to the east and west.
There is a large boulder here.
move boulder
I don't understand that.
stake boulder
You cannot take that.
seat boulder
You don't have that.
skill boulder
I don't understand that.
stake boulder

```

Classic adventure—open the Terminal, type `emacs -batch -l dunnet`, and then press Return to fire up a little text-based adventure game called *Dead End*. Uh, so what exactly are we supposed to do with the boulder?

Find Files by Content with Darwin



WHAT YOU NEED

• Mac OS X (\$129, www.apple.com)

Imagine this: You're the Webmaster for a site that publishes figure-skating fiction. For this year's Nationals figure-skating competition, your boss wants to release a tribute edition that features every episode from your site's series, *The Strong and the Sequested*, written during last year's competition. At 4:30 p.m. on the Friday before the Nationals, the boss calls demanding a list of episode files, their sizes, and each story's final edit date. Sure, you could do a Contains search in the Finder and then a Get Info on each file, but you have hundreds of stories—it could take hours! And you've got a hot date waiting...

If you need a faster, more comprehensive way of finding files—

1 Terminal, Go Here Launch the Terminal and navigate to the directory (the folder) that houses your targeted files. Type **cd**, press the spacebar to add a space, and then type the path to the directory. To do this, type a slash (/), which stands for your hard drive, followed by each subsequent directory—separated by a slash—that you access to reach the target directory. Press the Return key to enter the command. If a directory has a space or an apostrophe in its name, put quotation marks around the full name. If a directory has double quotes (") in its name, put single quotes (') around the full name. In our case, we entered **cd /Documents/"MA Files"/** to navigate to our MA Files folder.

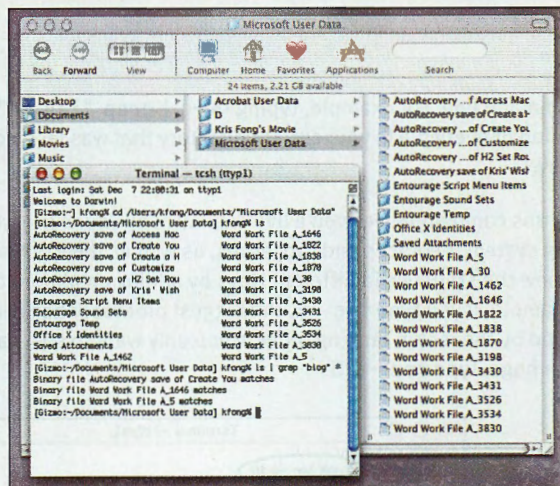
```
Terminal - ttyp1
Last login: Mon Nov 25 18:47:22 on ttty1
Welcome to Darwin!
[FireFly:~/Documents/MA Files] macosdict% cd /Documents/"MA Files"
[FireFly:~/Documents/MA Files] macosdict% █
```

Instead of navigating through folders, with the Terminal you can move around the system using the **cd** (change directory) command.

3 Find Me the Goods Since your boss only wants episodes written specifically during Nationals (a February event), list files in long information format to view dates, and use the **grep** command to list only items with February modification dates. You can do all of this by typing **ls -l | grep "Feb"**. The **ls -l** command and option lists long file information. The pipe (|) takes the list output and feeds it to the next command—**grep**, the search program. If you add **"Feb"** at the end, **grep** only returns lines that contain the word **Feb**—including February non-Nationals episodes.

Use **grep** to find and list all files with February dates.

```
Terminal - ttyp1
[FireFly:~/Documents/MA Files] macosdict% ls -l | grep "Feb"
-rw-r--r--  1 macosdict  staff  10408 Feb 25 2001 tats101.html
-rw-r--r--  1 macosdict  staff  8256 Feb 25 2001 tats102.html
-rw-r--r--  1 macosdict  staff  8582 Feb 25 2001 tats103.html
-rw-r--r--  1 macosdict  staff  11942 Feb 25 2001 tats104.html
-rw-r--r--  1 macosdict  staff  11652 Feb 25 2001 tats105.html
-rw-r--r--  1 macosdict  staff  8380 Feb 25 2001 tats106.html
-rw-r--r--  1 macosdict  staff  9406 Feb 25 2001 tats107.html
-rw-r--r--  1 macosdict  staff  7615 Feb 25 2001 tats108.html
-rw-r--r--  1 macosdict  staff  11549 Feb 25 2001 tats109.html
-rw-r--r--  1 macosdict  staff  10839 Feb 25 2001 tats110.html
-rw-r--r--  1 macosdict  staff  15565 Feb 25 2001 tats111.html
-rw-r--r--  1 macosdict  staff  16296 Feb 25 2001 tats112.html
-rw-r--r--  1 macosdict  staff  18359 Feb 25 2001 tats113.html
-rw-r--r--  1 macosdict  staff  13488 Feb 25 2001 tats114.html
-rw-r--r--  1 macosdict  staff  12861 Feb 25 2001 tats115.html
-rw-r--r--  1 macosdict  staff  14639 Feb 25 2001 tats116.html
-rw-r--r--  1 macosdict  staff  20803 Feb 25 2001 tats117.html
-rw-r--r--  1 macosdict  staff  14762 Feb 25 2001 tats118.html
-rw-r--r--  1 macosdict  staff  16218 Feb 25 2001 tats119.html
-rw-r--r--  1 macosdict  staff  12305 Feb 25 2001 tats120.html
-rw-r--r--  1 macosdict  staff  14319 Feb 25 2001 tats121.html
-rw-r--r--  1 macosdict  staff  13190 Feb 25 2001 tats122.html
```



We needed to find out which of these generically named Word files was our Web-log article; rather than open all 14 files in Word, we used the Terminal to find the right one by content.

by context and/or by criteria—and then culling the information into a file, use the Terminal. We show you how to find exactly what you need—just take our instruction and apply it to your own situation. Note: Terminal newbies should read "Get a Grep," p62, before proceeding.

2 Gimme the List To get a list of all the files in your current directory, type **ls** (that's a lowercase **l**, as in *loony*), press Return, and **whomp**—there it is. The list contains all 241 episodes in the series, which brings up this noteworthy point: The Terminal has its limits. Some commands (like **grep**) can't handle more than 256 files, and command lines can't be more than 2,056 characters long. If you need to access more than 256 files at a time, or if you have files with long names, separate them into different directories and run commands on each directory.

```
Terminal - ttyp2
[FireFly:~/Documents/MA Files] macosdict% ls
tats101.html tats129.html tats166.html tats203.html tats240.html tats264.html
tats282.html tats313.html tats367.html tats4204.html tats4241.html tats465.html
tats483.html tats530.html tats568.html tats6205.html tats625.html tats666.html
tats684.html tats731.html tats769.html tats8286.html tats826.html tats867.html
tats895.html tats932.html tats971.html tats10297.html tats10271.html tats1066.html
tats1086.html tats133.html tats178.html tats2086.html tats2020.html tats269.html
tats287.html tats341.html tats372.html tats4209.html tats4320.html tats470.html
tats488.html tats535.html tats572.html tats621.html tats630.html tats671.html
tats699.html tats136.html tats173.html tats2128.html tats2121.html tats272.html
tats289.html tats377.html tats474.html tats521.html tats532.html tats573.html
tats608.html tats636.html tats675.html tats721.html tats732.html tats774.html
tats8181.html tats159.html tats176.html tats213.html tats241.html tats275.html
tats302.html tats414.html tats477.html tats524.html tats535.html tats576.html
tats603.html tats648.html tats776.html tats8225.html tats826.html tats877.html
tats104.html tats141.html tats179.html tats216.html tats237.html tats270.html
tats105.html tats142.html tats181.html tats217.html tats308.html tats379.html
tats106.html tats143.html tats188.html tats218.html tats239.html tats260.html
tats107.html tats144.html tats181.html tats219.html tats240.html tats261.html
tats108.html tats145.html tats182.html tats221.html tats241.html tats262.html
tats109.html tats146.html tats183.html tats222.html tats242.html tats263.html
tats110.html tats147.html tats184.html tats223.html tats243.html tats264.html
tats111.html tats148.html tats185.html tats224.html tats244.html tats265.html
tats112.html tats149.html tats186.html tats225.html tats245.html tats266.html
```

Type two simple letters—**ls**—and the Terminal spits out a list of the stuff stored in the current directory.

4 Search by Content To streamline your search, type **ls -l | grep "Nationals"**. This makes **grep** search for text strings in the files containing the word **Nationals**. The asterisk (*) instructs the system to look inside every file in this directory. This works fine with regular text documents—but the command will list all matching files by name—but because your episodes are HTML (documents without line feeds), **grep** returns the entire body text of every file—all 8,400 some-odd lines. Yowza!

The **grep** command can find content in documents that contain a specific word or text string; with HTML files, you may need an extra tweak.

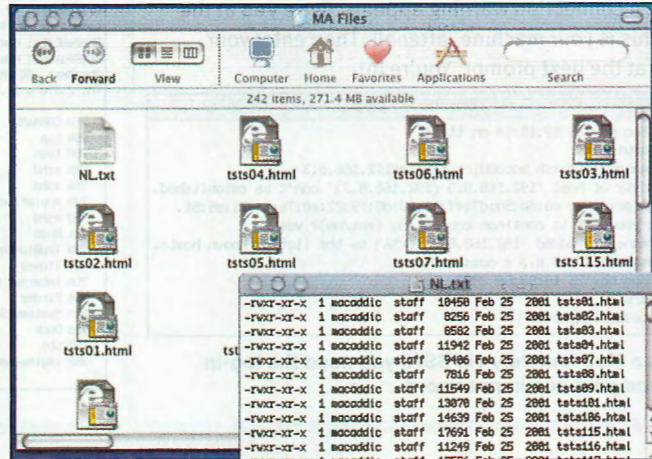
```
Terminal - ttyp1
[FireFly:~/Documents/MA Files] macosdict% ls -l | grep "Nationals"
-rw-r--r--  1 macosdict  staff  10408 Feb 25 2001 tats101.html
-rw-r--r--  1 macosdict  staff  8256 Feb 25 2001 tats102.html
-rw-r--r--  1 macosdict  staff  8582 Feb 25 2001 tats103.html
-rw-r--r--  1 macosdict  staff  11942 Feb 25 2001 tats104.html
-rw-r--r--  1 macosdict  staff  11652 Feb 25 2001 tats105.html
-rw-r--r--  1 macosdict  staff  8380 Feb 25 2001 tats106.html
-rw-r--r--  1 macosdict  staff  9406 Feb 25 2001 tats107.html
-rw-r--r--  1 macosdict  staff  7615 Feb 25 2001 tats108.html
-rw-r--r--  1 macosdict  staff  11549 Feb 25 2001 tats109.html
-rw-r--r--  1 macosdict  staff  10839 Feb 25 2001 tats110.html
-rw-r--r--  1 macosdict  staff  15565 Feb 25 2001 tats111.html
-rw-r--r--  1 macosdict  staff  16296 Feb 25 2001 tats112.html
-rw-r--r--  1 macosdict  staff  18359 Feb 25 2001 tats113.html
-rw-r--r--  1 macosdict  staff  13488 Feb 25 2001 tats114.html
-rw-r--r--  1 macosdict  staff  12861 Feb 25 2001 tats115.html
-rw-r--r--  1 macosdict  staff  14639 Feb 25 2001 tats116.html
-rw-r--r--  1 macosdict  staff  20803 Feb 25 2001 tats117.html
-rw-r--r--  1 macosdict  staff  14762 Feb 25 2001 tats118.html
-rw-r--r--  1 macosdict  staff  16218 Feb 25 2001 tats119.html
-rw-r--r--  1 macosdict  staff  12305 Feb 25 2001 tats120.html
-rw-r--r--  1 macosdict  staff  14319 Feb 25 2001 tats121.html
-rw-r--r--  1 macosdict  staff  13190 Feb 25 2001 tats122.html
```


5 Get Ticked Off Instead of piping the list with long information to grep, use the back-tick command to make the command list only the file names with long information in its search results (you need those dates and file sizes). Enclose the full grep command in back-ticks (`), which takes grep's findings and outputs them as a list with long info. To do this, type `ls -l `grep -l "Nationals" *``.

```
Terminal - ttty1
[FireFly:~/Documents/MA Files] macaddict% ls -l `grep -l "Nationals" *`
-rwxr-xr-x  1 macaddict  staff  10450 Feb 25 2001 tsts01.html
-rwxr-xr-x  1 macaddict  staff   8256 Feb 25 2001 tsts02.html
-rwxr-xr-x  1 macaddict  staff   8582 Feb 25 2001 tsts03.html
-rwxr-xr-x  1 macaddict  staff  11942 Feb 25 2001 tsts04.html
-rwxr-xr-x  1 macaddict  staff   9406 Feb 25 2001 tsts07.html
-rwxr-xr-x  1 macaddict  staff   7816 Feb 25 2001 tsts08.html
-rwxr-xr-x  1 macaddict  staff  11549 Feb 25 2001 tsts09.html
-rwxr-xr-x  1 macaddict  staff  13070 Feb 25 2001 tsts101.html
-rwxr-xr-x  1 macaddict  staff  14639 Feb 25 2001 tsts106.html
-rwxr-xr-x  1 macaddict  staff  17691 Feb 25 2001 tsts115.html
-rwxr-xr-x  1 macaddict  staff  11249 Feb 25 2001 tsts116.html
-rwxr-xr-x  1 macaddict  staff  17576 Feb 25 2001 tsts117.html
-rwxr-xr-x  1 macaddict  staff   9190 Feb 25 2001 tsts119.html
-rwxr-xr-x  1 macaddict  staff  13018 Feb 25 2001 tsts120.html
-rwxr-xr-x  1 macaddict  staff  10887 Feb 25 2001 tsts126.html
-rwxr-xr-x  1 macaddict  staff  14576 Feb 25 2001 tsts133.html
-rwxr-xr-x  1 macaddict  staff   9370 Feb 25 2001 tsts135.html
-rwxr-xr-x  1 macaddict  staff  11014 Feb 25 2001 tsts137.html
-rwxr-xr-x  1 macaddict  staff  11481 Feb 25 2001 tsts141.html
-rwxr-xr-x  1 macaddict  staff  11222 Feb 25 2001 tsts154.html
-rwxr-xr-x  1 macaddict  staff  18076 Feb 25 2001 tsts155.html
-rwxr-xr-x  1 macaddict  staff  11083 Feb 25 2001 tsts156.html
-rwxr-xr-x  1 macaddict  staff  16155 Feb 25 2001 tsts160.html
```

Instead of piping a list to grep to find what you need, add back-ticks to the command to have it display the listed results with long information.

6 Send 'Em the Results You could just copy and paste the listing into a text file to send to your boss, but that's lame. Instead, use the operator command (>) to write the results to a file for email attachment. To do this, type `ls -l `grep -l "Nationals" *` > NL.txt` (NL.txt is what you're naming your new file). If you need to run the command again on a second directory, use the append operator (>>), which adds the second list to your first file. Remember, two writes don't make a wrong—they make an append.



The operator outputs the list as a text file in your current directory—its content mirrors your Terminal list.

Control a Mac Remotely



WHAT YOU NEED

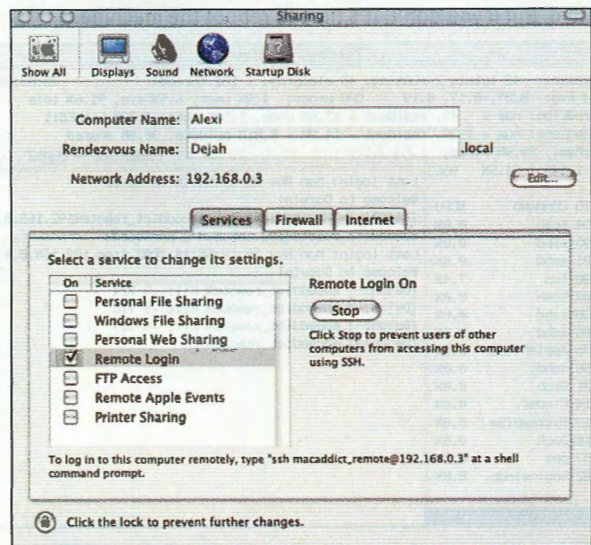
- Two Macs, both with OS X (\$129, www.apple.com)
- Internet connection for both machines

You're on a business trip, PowerBook in hand. At the office, your trusty G4 awaits your return, faithfully serving every file you request remotely as you feverishly prepare for your big presentation. It's 20 minutes until show time, and you're trying to copy that last graphic, but the G4 ain't responding. It's hung. Locked up. Dead as a doornail. You left Classic running, and for some reason—perhaps its SOCKS proxy was too tight—Classic has crashed. During the day, you could have someone walk into your office and reboot your G4, but it's 7:40 p.m. You're toast. Next time, apply the following instruction so you can reboot your office Mac remotely.



Master and slave—with the Terminal, you can control another Mac from practically anywhere in the world.

1 Address This Mac To control a Mac remotely, you need to enable remote log-in before you leave it behind and hightail down Route 66. In the System Preferences, click the Sharing preference, click the Services tab, check the Remote Login box, and click Start. When it finishes starting up, the log-in address will appear at the bottom of the window with a user name and IP address. Jot down this information—you'll need it to log in to that Mac remotely.



See that address at the bottom of the window? That's the secret code that allows you to control this Mac remotely.

2 Captains, Log In On your other Mac, launch the Terminal. In the window, type **ssh**, type a space, and then type the user name and IP address you copied from the Sharing preferences pane to log in to your other Mac. In our case, we would type **ssh macaddict_remote@192.168.0.3**. SSH is a secure shell. It uses encryption (3DES, if you must know) to protect your data in transit, and must accept a numerical signature from the machine you're accessing. The first time you log in, a connection warning appears. Type **yes** at the prompt—this is *your* machine, after all. Then enter your password at the next prompt. You're in!

```
Terminal — ttyt1
Last login: Mon Nov 25 19:18:14 on ttyt1
Welcome to Darwin!
[FireFly:~] macaddict_remote@192.168.0.3
The authenticity of host '192.168.0.3 (192.168.0.3)' can't be established.
RSA key fingerprint is e6:8a:5a:d7:47:f1:83:d8:f9:22:e0:7e:24:21:e5:51.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added '192.168.0.3' (RSA) to the list of known hosts.
macaddict_remote@192.168.0.3's password:
Last login: Mon Nov 25 15:58:06 2002
Welcome to Darwin!
[Dejah:~] macaddict_remote% [
```

To access a Mac remotely via SSH, you need the log-in address and your admin password.

4 Faster, Jaguar! Kill! Kill! Without closing the old one, open a new Terminal shell (Command-N). In this window, log in to the remote machine as instructed in step 2. Now let's kill some processes, or in GUI speak, quit some apps. Type **kill -9 PID#** where **PID#** is the PID of one of your active apps. The **-9** option tells the OS to try really hard to kill a process. We typed **kill -9 724** to kill iTunes, and then killed Internet Explorer. But what the heck is TruBlueEnv? When Classic crashes, sometimes the underlying framework—TruBlueEnv—keeps running, slowing your computer to a crawl. Kill it from the Terminal as you did with the other apps. Once you do, chances are you'll regain control of the remote system. But if you don't, it's time to reboot the machine.

```
Terminal — ttyt1
Processes: 42 total, 2 running, 40 sleeping... 182 threads
Load Avg: 0.07, 0.17, 0.19 CPU usage: 1.9% user, 6.5% sys, 91.6% idle
SharedLibs: num = 49, resident = 17.9M code, 1.58M data, 4.82M LinkEdit
MemRegions: num = 1935, resident = 14.9M + 5.01M private, 38.8M shared
PhysMem: 29.9M wired, 66.6M inactive, 21.7M free
VM: 1.14G + 34.5M 9663
PID COMMAND NCPU TIME
794 tcsh 0.0% 0:00.04
793 sshd 0.0% 0:00.01
791 sshd 0.0% 0:00.00
798 top 7.4% 0:00.00
789 tcsh 0.0% 0:00.00
788 sshd 0.0% 0:00.00
786 sshd 0.0% 0:00.00
776 AppleFiles 0.0% 0:00.00
758 sshd 0.0% 0:00.00
731 Grab 0.0% 0:00.00
714 Finder 0.0% 0:00.00
713 SystemUIServer 0.0% 0:00.00
710 Dock 0.0% 0:00.00
707 pbs 0.0% 0:00.00
702 loginwindow 0.0% 0:00.00

Terminal — ttyt2
Last login: Mon Nov 25 19:58:16 on ttyt2
Welcome to Darwin!
[FireFly:~] macaddict_remote@192.168.0.3
macaddict_remote@192.168.0.3's password:
Last login: Mon Nov 25 19:55:14 2002 from 192.168.0.4
Welcome to Darwin!
[Dejah:~] macaddict_remote% kill -9 724
[Dejah:~] macaddict_remote% kill -9 716
[Dejah:~] macaddict_remote% kill -9 729
[Dejah:~] macaddict_remote% [
```

By typing the **kill** command and its subsequent **-9** (try really hard) option, you can quit active apps from a remote machine.

3 Get to the Top At the next prompt, type **top** to get an interactive look at your remote computer's processes and resources—lots of gobbledygook to most folks. Pay attention to the first three columns—they're what's important. **PID** (process ID) is what Mac OS X uses to identify programs internally, **Command** is the program name, and **%CPU** tells you how much of the processor the program is using. Note which of your apps are active—in our screen, not much is happening except for iTunes, TruBlueEnv, and Internet Explorer.

```
Terminal — ttyt1
Processes: 42 total, 3 running, 39 sleeping... 128 threads
Load Avg: 0.19, 0.03, 0.00 CPU usage: 6.4% user, 11.0% sys, 82.6% idle
SharedLibs: num = 49, resident = 17.9M code, 1.58M data, 4.82M LinkEdit
MemRegions: num = 2428, resident = 44.8M + 6.18M private, 59.5M shared
PhysMem: 38.8M wired, 136M active, 88.0M inactive, 246M used, 18.3M free
VM: 2.37G + 34.5M 9663(0) pageins, 758(0) pageouts

PID COMMAND NCPU TIME #TH #PRTS #MREGS RPRVT RSHRD RSIZE VSIZE
798 top 7.3% 0:02.77 1 15 17 196K 336K 492K 13.6M
789 tcsh 0.0% 0:00.04 1 18 15 340K 588K 784K 5.73M
788 sshd 0.0% 0:00.01 1 8 34 100K 1.22M 412K 16.8M
786 sshd 0.0% 0:00.00 1 14 34 84K 1.22M 996K 16.8M
776 AppleFiles 0.0% 0:00.78 7 58 36 972K 1.74M 1.91M 28.9M
758 sshd 0.0% 0:00.17 1 8 14 64K 676K 168K 1.83M
731 Grab 0.0% 0:00.47 3 128 145 3.39M 7.75M 7.18M 98.6M
729 TruBlueEnv 3.6% 0:47.58 16 191 229 21.4M 12.8M 32.8M 1.88G
724 iTunes 1.0% 0:04.94 6 108 176 4.77M 9.73M 9.28M 96.8M
716 Internet E 0.9% 0:00.18 7 87 150 4.85M 12.5M 11.7M 97.9M
714 Finder 0.0% 0:07.73 1 75 127 2.26M 13.2M 7.86M 91.4M
713 SystemUIServer 0.9% 0:02.15 1 141 131 1.18M 5.87M 3.89M 79.2M
710 Dock 0.0% 0:01.70 2 87 122 816K 11.9M 2.82M 82.7M
707 pbs 0.0% 0:00.65 2 27 27 480K 888K 1.12M 14.4M
702 loginwindow 0.0% 0:00.99 4 158 131 1.74M 5.76M 3.88M 82.6M
```

Here's a look at the remote computer's processing in action—pay attention to the first three columns.

5 Give It the Boot In the second Terminal window (the one in which you did the killing), type **sudo reboot** to reboot the remote Mac. The **sudo** command allows you to execute one command as root. The first time you use **sudo reboot**, you'll get a brief, schoolmarmish lecture about not rebooting machines you shouldn't and other stuff (but you *can* run with scissors). You'll be prompted for your admin password—type it in and press Return. When the remote machine reboots, the Terminal window running **top** will lose its connection. Don't worry. Wait a few minutes for the computer to restart, and you'll be back in business again.

```
Terminal — ttyt2
[Dejah:~] macaddict_remote% sudo reboot
We trust you have received the usual lecture from the local System
Administrator. It usually boils down to these two things:

#1) Respect the privacy of others.
#2) Think before you type.

Password:
Connection to 192.168.0.3 closed by remote host.
Connection to 192.168.0.3 closed.
[FireFly:~] macaddict_remote%

Terminal — ttyt1
Last login: Mon Nov 25 19:58:16 on ttyt2
Welcome to Darwin!
[FireFly:~] macaddict_remote@192.168.0.3
macaddict_remote@192.168.0.3's password:
Last login: Mon Nov 25 19:55:14 2002 from 192.168.0.4
Welcome to Darwin!
[Dejah:~] macaddict_remote% kill -9 724
[Dejah:~] macaddict_remote% kill -9 716
[Dejah:~] macaddict_remote% kill -9 729
[Dejah:~] macaddict_remote% [
```

If killing TruBlueEnv doesn't unlock your remote machine, reboot it with the almighty **sudo**.

Mary E. Tyler has been using Macs since everyone thought the Mac Plus was speedy, and Unix machines since you needed permission from the military to send email offsite.

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Turn Your Old Power Mac into a Digital Hub

by Kris Fong

Drooling over a newfangled Mac will get us one of two things—in the poorhouse or sopping wet. Every six months or so, Apple's latest processor-speed bump makes us feel as if our old trusty, beige Macs and older G3s are going the way of the dodo. But before you start budgeting for that new Mac just to keep up with Steve Jobs's digital-hub revolution, take this into consideration—you could save some money if you upgrade your old Mac instead. It won't get you speeds as fast as those of the dual-processing dealybops, but it may allow you to run almost every current app and device available—depending on your core system.

If saving money and mad loyalty are your virtues, we show you how to easily upgrade your old Power Mac to a speedy G3 or G4 processor, ramp up your RAM, and add USB and FireWire to your system for less than the cost of a new Mac. Note that for a really old machine, it's a good idea to upgrade your video



PHOTOGRAPH BY KRIS FONG

A little over \$350 worth of processor, memory, FireWire, and USB upgrades turned our dusty desktop-weight into a digital hub.

card, too, if gaming or video editing is on your horizon. Here, we demonstrate the installation process with a Power Mac 7200—if you need to know how to get to the guts of your particular Mac, visit PC Connection's Mac memory installation site at www.pcconnection.com/scripts/service/meminstall/index.asp.

Increase Your Mac's Memory



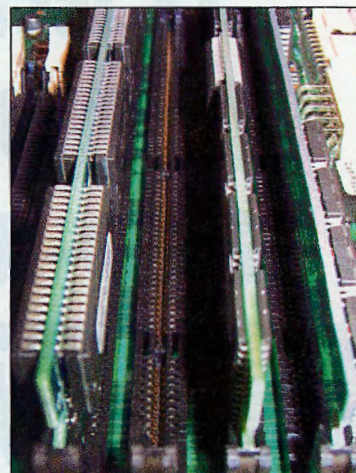
WHAT YOU NEED

- Compatible memory

Still dabbling with just your stock RAM? Put some snap in application performance by adding more memory.

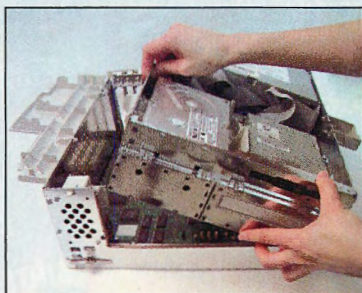
Applications today generally require more memory than those that came out back when you first bought your old Mac. If you want better app performance, buy more memory. While virtual memory can get you out of some tight jams, upping your memory will give your apps enough breathing room to run more efficiently.

There's no reason to buy the maximum RAM your Mac can hold unless you plan to run memory-hungry games, do heavy Photoshop work, record and sequence music, or edit video—128MB to 256MB installed will probably satisfy most users. Here's how to install DIMMs on a Power Mac 7200 or other similar DIMM-supporting Mac (7500, 8500, 9500, and so on). Note that memory-slot location varies slightly.



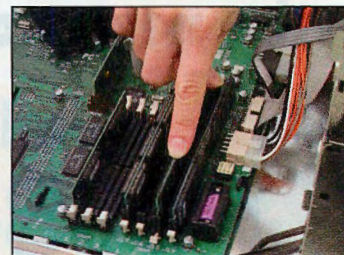
1 Take It Off Unplug all cables and cords from the CPU, and then take off its top cover by pushing up the two tabs under the front panel, sliding the cover forward, and lifting it. Flip the support piece

on the right side of the machine out to the right, and flip the left plastic cover above the PCI slots out to the left. Then slide the two locking tabs (one by the power supply, the other by the hard drive) inward, and flip the entire chassis to the right until it rests on the support piece.



Slide the two locking tabs inward to unlock, and then flip the entire chassis out to the right to get to the 7200's guts.

2 Gain Memory Before handling memory modules, discharge any static electricity by plugging the power cord back in, touching the metal power-supply case, and unplugging the cord. In the 7200, the DIMM slots are the four rightmost front slots. On an empty DIMM slot, flip the edge clip outward. Then remove your new module from its package, taking care not to touch the gold connectors. Line up the notches on the module with those on the slot and press it straight down and firmly into place—the edge clip will snap inward to secure the module. Repeat for any additional modules. Then close everything up, connect all cables, and fire up your Mac. From the Apple menu, select About This Mac to view your newly gained memory.



Press memory modules straight down into the slot—the edge clip will spring up and latch onto the chip to secure it.

Upgrade Your Processor

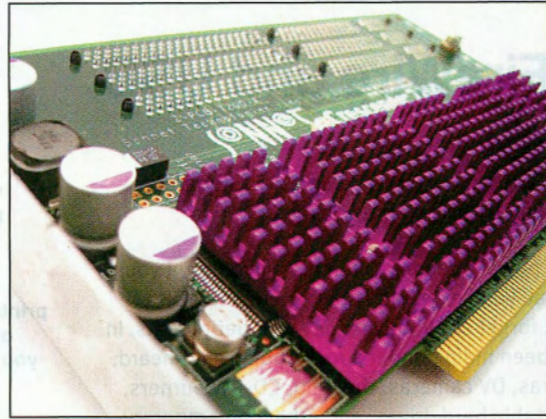
EASY

WHAT YOU NEED

- Compatible processor-upgrade card
- Small Phillips screwdriver

The best upgrade you can give your old Power Mac is a spunkin' new processor. Depending on the model you have, you may be able to choose between a G3 or G4, each with various processor speeds, backside caches, bus speeds, and, of course, prices. You'll find a number of G3 and G4 upgrade cards available from Sonnet Technologies (www.sonnettech.com), PowerLogix (www.powerlogix.com), and Newer Technology (www.newer-tech.com). Note that upgrade cards appear and disappear at whim, so vendors may have replaced what was available at press time with something else by the time you read this.

Before you upgrade the processor, make sure your Mac is running at least Mac OS 8.6, the minimum OS required to install

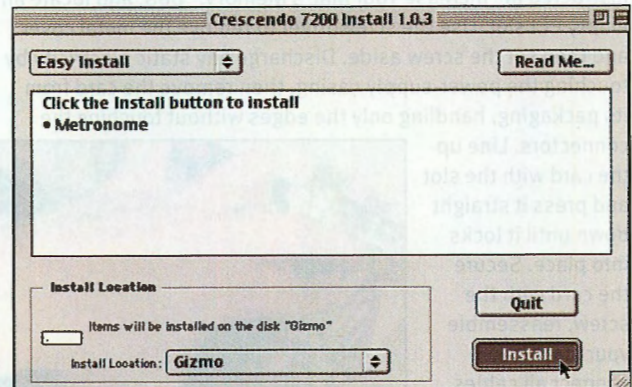


G4 envy?
A little investment in a processor upgrade can bring a whole new spunky life to your old Mac.

most cards. Consult your upgrade card's literature for any other particulars prior to installation. For example, our Sonnet Crescendo 500MHz G3/7200 (\$169.95) requires that you install DIMMs on the card for better G3 performance. Also bear in mind that even though an upgrade card may be rated at, say, 500MHz G4 speed, your actual results may vary, depending on the system (disk cache, bus speed, RAM configuration, other installed hardware, and so forth).

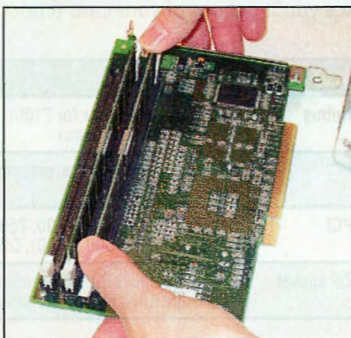
1 Install Software First If you plan to upgrade your OS, do the upgrade now before installing the processor card—you'll need at least OS 8.6 before continuing. If your machine supports OS X upgrades (see "How Fast Can I Go?" p70), wait until *after* you install the card to upgrade. Then run the installer software that comes with the card. When finished, power down, disconnect all cables, and open up your Mac (see step 1 of "Increase Your Mac's Memory," p68) to get to the PCI slots. Discharge any static electricity from yourself by replugging in the power cord, touching the power-supply casing, and unplugging the cord before handling cards.

Before you reach for the screwdriver, first make sure you install the necessary software to run the card.



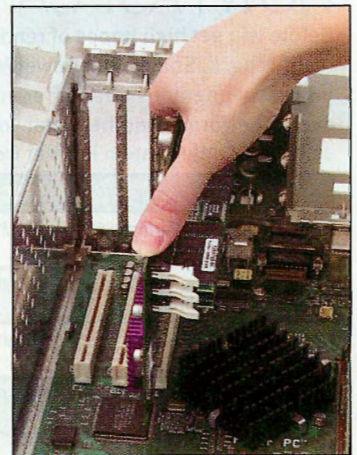
2 Migrate the Memory With the Sonnet Crescendo, we have the option of adding more DIMMs onto the card itself to increase system performance. If that's the case for your card, install it in the slot furthest from the computer's edge so it doesn't block your remaining PCI slots. (If you don't have this card, skip to step 3.) Install any additional DIMMs in the empty DIMM slots on the back of the card. Otherwise, remove your existing memory modules from the motherboard (press the edge clip down to pop the module out of its slot) and snap them onto the card. The more memory you can give the card, the better, but you must leave at least 16MB (OS 8.6) or 32MB (OS 9.x) on the motherboard.

With our particular card, we moved our motherboard DIMMs to the card to give the G3 processor better performance.



3 Pop In the Processor Remove the screw on top of an empty PCI slot to detach the metal plate that covers it. Carefully line up the card with the motherboard slot and firmly press it straight down—the card should snap into place with an audible click. Grab the screw you just removed and use it to secure the card to the casing. Reassemble your machine, connect all cables, and boot up. Once your system's up and running, select System Profiler from the Apple menu to make sure the OS recognizes the card. Now fire up your apps and games, and marvel at your Mac's newfound speed.

Just snap the processor card into an empty PCI slot, close it up, fire up your Mac, and get ready for some extra power.



Add FireWire and USB



WHAT YOU NEED

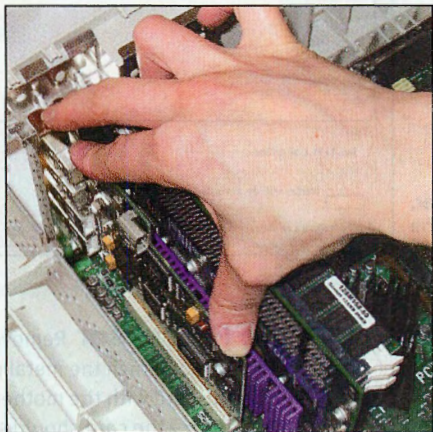
- Compatible FireWire and/or USB card
- Small Phillips screwdriver

Processor power and mega memory will only get you so far. If all you've got are serial, SCSI, and ADB connections, forget about buying any new peripherals. In case you've been hiding under a rock and haven't heard, digital cameras, DV cameras, the iPod, CD-RW burners, itty-bitty portable hard drives, and other contemporary devices are pretty much all about USB or FireWire these days.

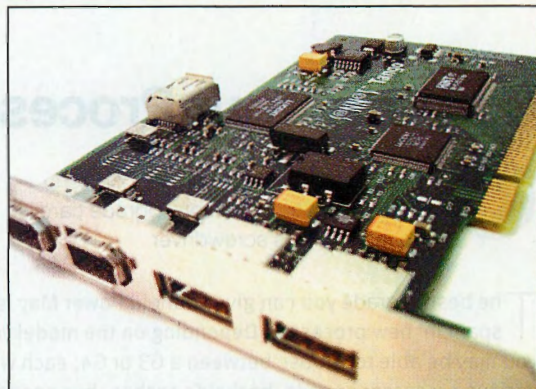
If you're looking to buy new toys for your Mac, you'll probably want to get a USB card, a FireWire card, or a both-in-one card like

1 Install the Card Unlike the processor upgrade, the Tango card requires that you install the card first, and then install the FireWire and USB drivers afterwards. Disconnect all cables, dismantle the machine as instructed in "Increase Your Mac's Memory," p68, and locate an empty PCI slot. Use the screwdriver to remove the metal cover and then set the screw aside. Discharge any static electricity by touching the power-supply casing, then remove the card from its packaging, handling only the edges without touching the connectors. Line up the card with the slot and press it straight down until it locks into place. Secure the card with the screw, reassemble your machine, connect all cables, and then boot up.

Push the card down firmly and squarely; any wiggly-jiggly movements could do some damage.



SCSI is so nineties. If you plan on buying a new digital camera, CD burner, iPod, printer, DV camera, or other device, you need FireWire and/or USB.



Sonnet's Tango FireWire/USB model (\$89.95). Check out our review of Sonnet's Tempo Trio (*Reviews*, Feb/03, p46). At the very least, get USB. Here's how to install the Tango in a 7200 or other PCI-based Mac (7500, 8500, 9500, and so forth).

2 Install the Drivers Once you've booted up, install the FireWire and USB drivers. If your card came with an installation CD, install the software from it (this may require an Internet connection to download the updated drivers directly from Apple's site). If your card (like ours) did not come with software, download both drivers from the Web (consult the manual for a specific location or go to Apple's site) and install them, or install the drivers from your latest OS install disc. After installing, restart the computer, and then go plug and play.



Download and install Apple's latest FireWire and USB drivers according to the card's instructions, then restart your Mac.

Even after Kris Fong tricked out her mom's 7200, her mom still wants one of those "cute, purple computers."

HOW FAST CAN I GO?

Before you get high hopes of rendering digital movies at lightning speeds or partaking in OS X's aquatic wonderland, let's do a reality check. Some older Power Macs top out at OS 9.1—even with a G3 or G4 upgrade (see below). Also keep in mind that different processor upgrades offer different bus-speed upgrades on the card, but your Mac's internal bus speed will play a factor in the card's overall performance; the faster your Mac's bus speed, the better performance you'll get out of your card (check out your Mac's stats by selecting Apple System Profiler from the Apple menu).

MODELS	PROCESSOR SPEED RANGE	AVERAGE MSRP RANGE	SLOT TYPE	MAX RAM	HIGHEST OS
6100, 7100, 8100, Performa 611x	500MHz G3	\$250	NuBus	264MB (136MB max for 7100), 72-pin SIMMs (in pairs)	OS 9.1
7200, 8200	400MHz G3 to 400MHz G4	\$170 to \$270	PCI	512MB (up to 768MB w/processor upgrade), DIMMs	OS 9.1
7300, 7500, 7600, 8500, 8600, 9500, 9600	400MHz G3 to 800MHz G4	\$120 to \$400	PCI	512MB (8500), 1GB (7300, 7500, 7600, 8600); 1.5GB (9500, 9600), DIMMs	OS 10.2.x
G3—desktop, mini tower, Blue-and-White	500MHz G3 to 500MHz G4	\$170 to \$300	ZIF socket	768MB (beige G3s), low-profile DIMMs, 1GB (blue & white), PC100 SDRAM	OS 10.2.x

Hijack the Poof

by Paul Yoon and Kris Fong



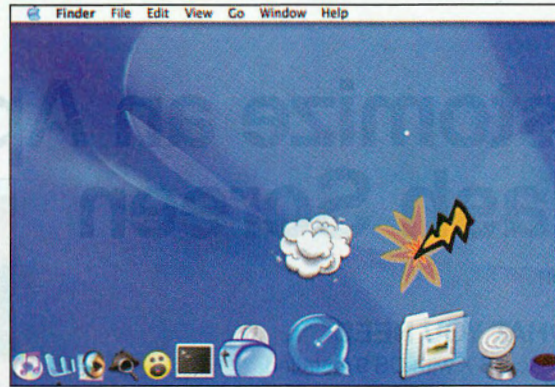
WHAT YOU NEED

- Mac OS 10.2 or later with OS 9 installed
- An image-editing app that preferably supports layers (such as Photoshop Elements, www.adobe.com, or Corel Graphics Suite 11, www.corel.com)

And just like that, it was gone. It was sitting on the Dock (not of the bay), unwanted, unused, and taking up space, so we threw it overboard and *poof*—our much-neglected Entourage icon vanished in an animated, puffy white cloud. We don't make a habit of offing Docked apps (application shortcuts), but who hasn't dragged an app onto the Dock, only to



Entourage icon vanished in an animated, puffy white cloud. We don't make a habit of offing Docked apps (application shortcuts), but who hasn't dragged an app onto the Dock, only to

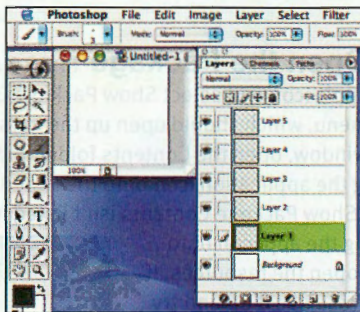


Replace the poof with your own creation, and say sayonara in style the next time you Tony Soprano an unwanted app icon.

toss it off immediately just for the pleasure of seeing it go *poof*?

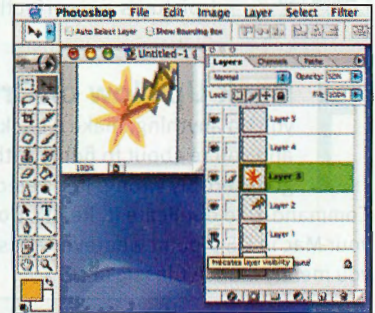
For those who love OS X's embellishments, you can take your odd amusement a step further by creating your own animation to replace the poof. Maybe you want an icon to vanish into a sea of ripples, get gobbled up by Pac Man, or get crisped by a bolt of lightning. Here's how to construct a simple five-frame animation and replace the Dock's poof.

1 Create Templates OS X animates the poof from a single graphic, containing five 128-by-128-pixel images in a column. Therefore, in your image editor, create a new document, 128 pixels wide by 640 pixels high (128 times 5 is 640—get it?), with a 72-dpi resolution, and set it aside as the master template. Then create a 128-by-128-pixel, 72-dpi document to serve as the animation template, and add five new layers on top of the Background layer. (If using an image editor that doesn't support layers, create five 128-by-128-pixel graphics.)



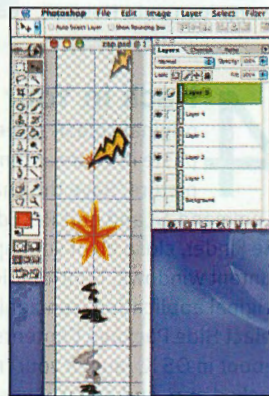
Add five layers over the Background layer for the animation frames.

2 Get Doodling Starting with Layer 1, draw the first frame of your animation using your app's drawing and/or painting tools. For the best look, keep each layer's background transparent. When finished, set the layer's Opacity to 50 percent, select Layer 2, and draw a graphic continuation of Layer 1. Toggle layer visibility on and off to see how the two frames work together. Continue drawing and toggling Layers 3 through 5 until you get what you want. Then bring Opacity back to 100 percent for all layers.



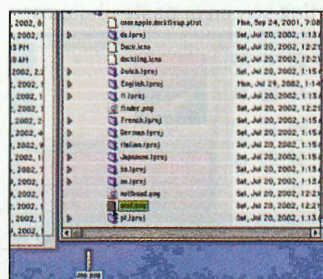
Doodle, toggle, ogle, repeat. Make sure each graphic flows with its predecessor and successor.

3 Paste It Together Select Layer 1, select all (Command-A), copy it (Command-C), go to the master template, paste in the image (Command-V), and move it to the top. Go back to the animation template, select Layer 2, copy it, paste it into the master template, and move it right below the first image without overlap or space between. Repeat with Layers 3 through 5, making sure each square lines up perfectly—the top left corner of each should fall on the 0-, 129-, 257-, 385-, and 513-pixel lines, respectively, along the y-axis. Turn off the Background layer's visibility, and then save the image as a PNG (portable network graphic) file.



OS X creates the animation by displaying each graphic individually in series—make sure you align them perfectly.

4 Poof the Poof Reboot your Mac in OS 9 (don't start up Classic). Locate Dock.app (System > Library > CoreServices > Dock.app), and make a backup copy of your file just in case. Then Control-click it and select Show Package Contents from the contextual menu. Open the Contents folder, then the Resources folder, locate poof.png, and rename it *poof-original.png* (or the like) to preserve it. Rename your new animation *poof.png* and stick it in the Resources folder. Then Control-click Dock.app again, select Hide Package Contents, reboot in OS X, and have fun committing Docked-app iconicide.



To preserve the original poof, rename it before you rename your own creation as *poof.png*.



Paul Yoon is a butcher, baker, and poofcrafter, living and working in San Francisco where PNG reigns supreme.

Customize an Application's Splash Screen

by Paul Yoon

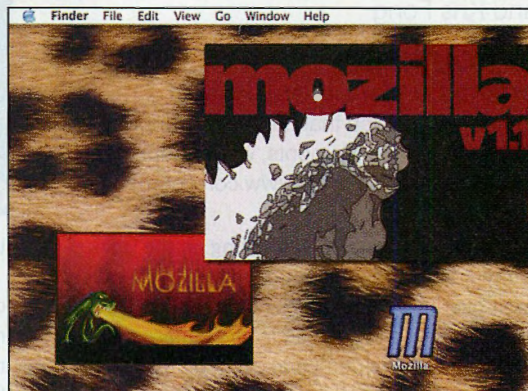
TRICKY

WHAT YOU NEED

- Mac OS X with OS 9 installed
- Apple ResEdit (free, <http://developer.apple.com/tools/legacy.html>)
- Any image editor (such as GraphicConverter or CorelDraw)

Many of us are never truly satisfied with anything until we get our grubby hands on it and tweak it to our liking. We get new ring tones and faceplates for our cell phones, and we squeeze baseball-cap brims until we get the perfect curve. But most commonly, we customize our Mac OS. To truly enjoy our desktop experience, hack we must.

While changing icons, themes, and desktop pictures are perfectly vanilla ways of tricking



Tired of the same old splash? We replaced Mozilla's fire-breathin' lizard boy with the evil Godzillanime.

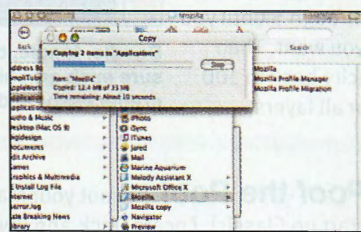
out your Mac, a quick ResEdit hack can mean not having to look at the same old splash screen every time you boot up a sluggish application (like Microsoft Word's gummy dubya).

If you haven't gone gung ho and tossed out your Classic system, here's how to hack OS X applications and adorn the brief display of splash-screen real estate with your own photos, art, and even messages (keep in mind that not all apps allow screen customization).



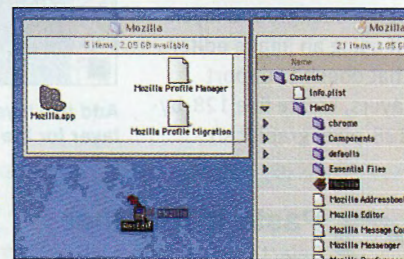
1 Back Up Now or Cry Later Before you do anything, make a backup copy of the OS X app you're about to fiddle with in case something goes terribly wrong. Just select the app and press Command-D to duplicate it. Really. Do it now. Then reboot your Mac in OS 9 point whatever—this hack won't work if you merely launch Classic in OS X.

The most important hacking tip in the world? Always make a backup copy of your app before you gut it.



2 Open the Package In OS 9.x, Control-click the targeted app's icon and select Show Package Contents from the contextual menu, which should open up the guts of the app. In the resulting window, open the Contents folder, then the MacOS folder, and finally drag the application icon onto the ResEdit icon to open its resources window. If Show Package Contents isn't listed in the contextual menu, try dragging the app icon onto ResEdit to open the resources. If neither works, give it up and try another app.

To open an application's resources, just expose its package contents, and then drag the app icon onto ResEdit.



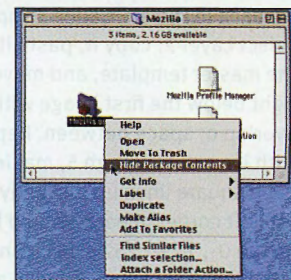
3 Make Your Screen Double-click the PICT resource, and then double-click the splash-screen resource to open the graphic. Copy the image (Command-C), open your image editor, create a new document (the dialog should display the correct dimensions via the Clipboard image), and paste in the graphic (Command-V). From here, you can modify the existing screen or paste photos or artwork over it and add text. Save as a PICT file, select all (Command-A), and copy the image.

Copy the splash screen and paste it into an image-editor document to serve as a template.



4 Hack In Your Screen In ResEdit, go back to the original splash screen resource (the one you copied), and paste in your customized picture. Save the changes (Command-S) and quit ResEdit. In the Finder, close all of your app's content windows, Control-click the original application icon again, and select Hide Package Contents. Then reboot in OS X, launch your freshly hacked app, and enjoy your splashy new graphic.

Open source dilettante Paul Yoon lives and works in San Francisco, and has learned to love the gecko.



Don't forget to hide your app's package contents so you'll be able to launch the app properly when you boot up in OS X again.

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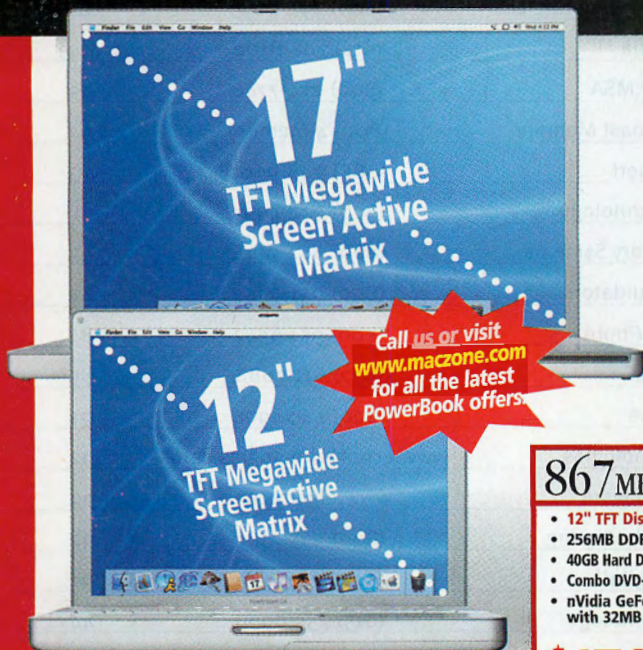
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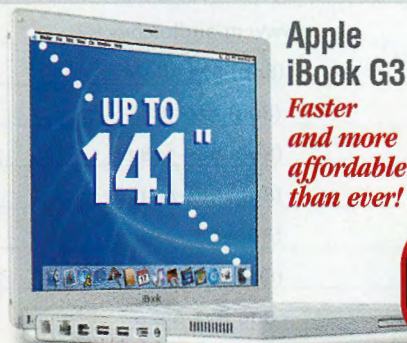
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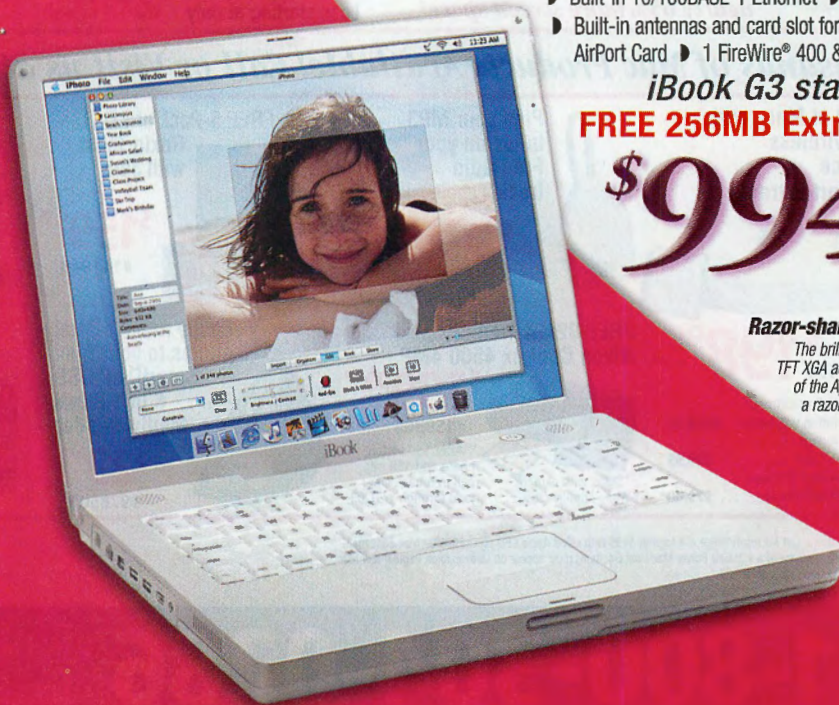
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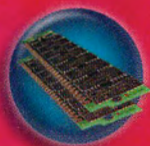
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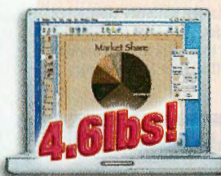
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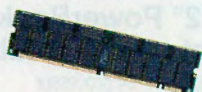
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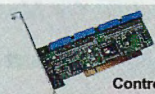
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For All PowerMac G4 Models 350-Dual 1GHz that use SDRAM DIMMs(except G4 'Yikes' PCI); iMac G3/350-700MHz, all G4 Cube Models; eMac G4/700-800MHz.

256MB	\$39.99	128MB	\$22.99
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For all Xserve Models, all 'new' G4 Dual 867MHz-1.25GHz models

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PC2700 is backwards compatible with PC2100 and may also be used in models that require only PC2100

PC100 CL2 SDRAM DIMMs

For all PowerMac G3 Models, PowerMac G4/350-500MHz (except G4/466 which requires PC133); All G4 Cube Models; iMac G3/350-700MHz.



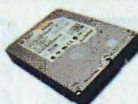
128MB	\$22.95	256MB	\$39.95*
256MB	\$34.99*	512MB	\$75.95*

* For PowerMac G4 AGP / Sawtooth models, G4 Cube, iMac 350-700MHz ONLY

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Note: Above ATA Drives are fully compatible with all versions of vanilla ATA/IDE, ATA/33, ATA/66, ATA/100, ATA/133, EIDE, UDMA, Etc. Drives may be used with any Mac that has built in IDE/ATA or an added ATA/IDE controller (such as by SIIG, Acard, VST, or Sonnet).

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512MB	\$99.95

Above memory operates PC100 CL2 in models utilizing PC100 memory.

PC100 CL2 SO-DIMMs



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* Now you can have up to 512MB in your iMac or above PowerBook model

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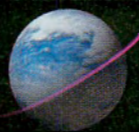
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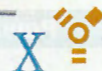
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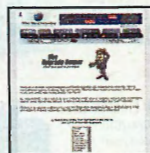
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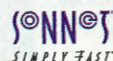
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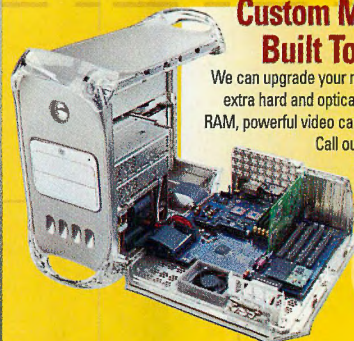
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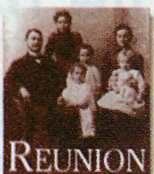
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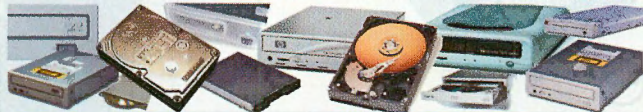


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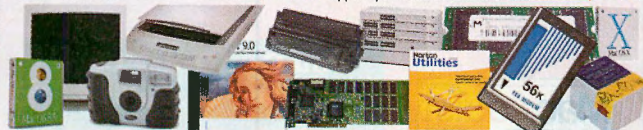


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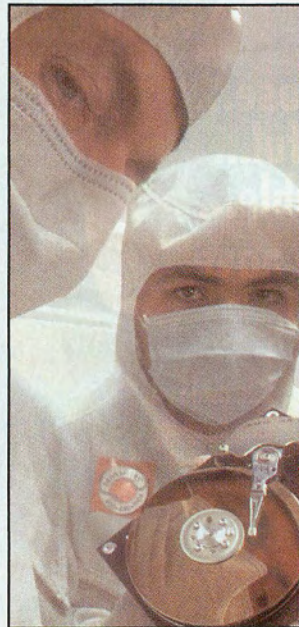
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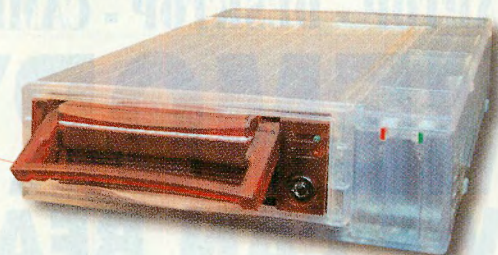
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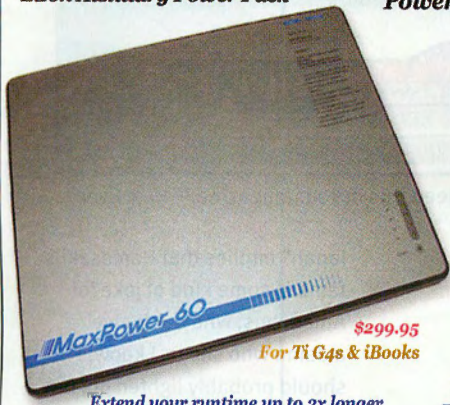
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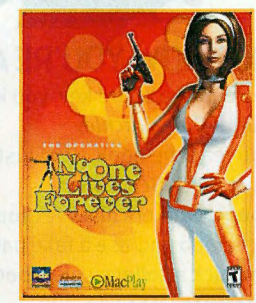
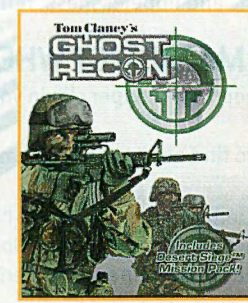
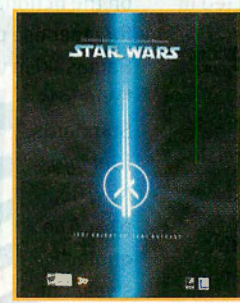
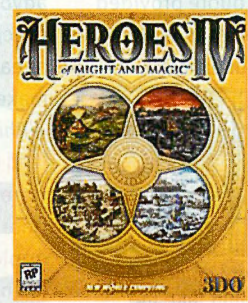
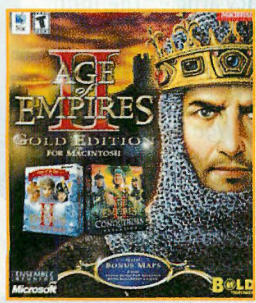
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LETTERS

Davis says his next project will be a snowflake.

BOO

I took a Tangerine tray-loading iMac case, added a light bulb, and designed the face based on the Mac OS logo.

—Thomas Davis

LESSON IN SUPPLY AND DEMAND

Thanks a lot, *MacAddict*, for telling the world at large about Newtons in "The New Newton Thing," (*Get Info*, Dec/02, p10). Now everyone is gonna want one. You think I'm kidding? I went on eBay a few days after getting my December issue, and I bid on at least a half dozen different Newton



Swing, batter!

YOU KNOW YOU'RE A MACADDICT WHEN...

...instead of a spare key, you keep a bent paper clip in your wallet.—Dale Critchley
 ...you read the book *1984* just to find out what the commercial was about.—Ben Sisley
 ...your coworkers discover your initials are P. C., so you find another job and use a fake name.—Phillip, uh, I mean Bob C.
 ...you pick a college solely because it is in the Mid-American Conference (MAC).

2100s with a maximum bid of \$95. I was outbid on all of them.

—Greg Hargis

Maybe we could do the same thing for our Bill Gates piñata. Now *everyone* is going to want one of those.—Max

MODERN ART

Our new iMac G4 helped bring my art to life. Everyone at school thought it was cool, but I thought fellow Mac lovers would appreciate it more. I aim to go to graphic design school in the future and hope someday to be as good a designer as the ones at Apple.

—Alistair Patterson
 This young New

Zealander sent us his mixed-media installation of Bill Gates chopping down a PC. Pulling the lever at the bottom unleashes Bill's silver-tipped axe into a generic-looking PC machine. The nihilistic piece evokes feelings of helplessness and hopelessness, reflected in



Fe, fi, fo, fum, I smell the blood of a Windows man.

Gates's haggard visage.—Max

GROAN

Q. Why did the editor in chief of *MacAddict* go see a shrink?

A. He had some issues.

—Merritt Lawrenson

This is the *Letters* section, people.—Max

WILD, SWEET, AND COOL

Holy cow! The Crystal Method uses Macs! I first heard of The Crystal Method when my friend had some of its songs on his computer. Since then, I have bought two of the group's CDs and still love every track. To find out that these busy children use Macs just about made my day. I just wanted to say that your article on The Crystal Method ("Secrets of the Pros," Jan/01, p38) was one of my personal *MacAddict* favorites.

—Nevada Dav

The Crystal Method is a cool band with cool Macs and cool music. There's a connection there somewhere.—Max

J-POPPED

I would just like to comment on the fictional quote provided for Japanese pop star Ayumi Hamasaki in your article "Wireless Standards," (*Get Info*, Nov/02, p14). The quote "I swear I'm famous in



If only *MacAddict* would take me seriously...

RECENTLY SIGHTED

You need this in your magazine.—Mike Ryder

Japan" implies that Hamasaki's fame is some kind of joke for Americans, who don't give a damn who she is. I know, I should probably lighten up, but I can't help feeling this quote is disdainful and deprecating.

—Martin Gonzales

We at *MacAddict* poke fun at bubble-gum pop from all nations. Just call us equal-opportunity music snobs.—Max

GUNDAM GEEKAGE

Leslie Osborn considers herself an expert Mobile Suit¹ pilot? Sweeeeeeet. She gets my vote! Actually, wait. It depends: Only if it's a UC-era² MS. Sorry, but that's the way it goes.—Beej UC all the way, but if I had the chance to pilot *Deathscythe Hell*³, I'd take it in a heartbeat. And now my facade of cool is destroyed forever⁴.—Leslie

UHHHH...

My friend showed me the Mac advocacy article "The Truth" (*Dec/02*, p25). If Apple is so ahead of its time, why can't it make a two-button mouse?

—Phitan Ngo

If all the computer companies were jumping off the Golden Gate Bridge, does that mean Apple should do it too? OK, so it's not quite the same thing.

—Max

1. Mobile Suit: a big, rideable robot, used in battle in the various *Gundam* anime series. 2. UC: Universal Century, arguably the *Gundam* timeline. 3. *Deathscythe Hell*: MS piloted by the irrepressible Duo Maxwell in *Gundam Wing*, a series not set in the UC timeline. 4. As the *Simpsons*' Comic Book Guy realized in a moment of clarity, "Oh no...I've wasted my life."

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LOG OUT 95

MacAddict READER POLL

Q What kind of printer do you use?
Choose one: Four-color inkjet, laser,
six-color photo, or dot matrix

Q What style of underwear do you prefer?
Choose one: Boxers, briefs, thong, or
commando*

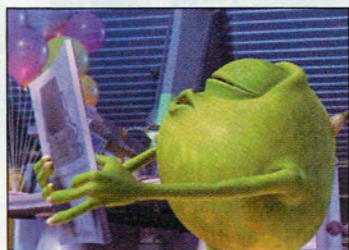
*Commando refers to the practice of wearing no underwear whatsoever. This
style is also referred to as party-style, unfurnished basement, and freestyle.

To vote, click Reader Poll at www.macaddict.com before February 10, 2003.
See the April 2003 issue for the results. Check www.macaddict.com for a new poll each month.

SCARE DIFFERENT

I was watching Pixar's *Monsters, Inc.* for the 100th time with my kids the other night. You would think it would get boring after even the third time, but if you really look, you'll find some cool, hidden stuff like this Apple ad on the back of a magazine.—*S. Hendry*

It's the rare CEO that can pass up a free advertising opportunity.—*Max*



Do the monster Mac.

CELEBRITIES AND THEIR IPODS

Yeah, so I flew from Austin to Chicago for Thanksgiving, and actor Michael Caine was on the flight. I used a trip to the restroom as an excuse to get a glimpse, and he's jamming to an iPod! Just wanted to share that little tidbit with the world.—*Ståle Bjørdal*

Now if you had seen Caine jamming to an iPod in the restroom, that would be something.—*Max*

IMPORTANT CORRECTION

In response to a letter (*Log Out*, Jan/02, p94), Max wrote, "Come to think of it, I never did see an iMac in Springfield." Are you crazy? Doesn't anybody remember the episode where Homer goes to an Internet cafe and invests his money online? The place was full of multicolored iMacs. Don't you guys remember any of the *Simpsons'* episodes?—*Alex Boeglin*

Double d'oh!—*Max*

WHAT FIVE CENTS GETS YOU

When I want to rebuild my desktop file, I don't feel like sitting there with my fingers on the Option-Apple keys while my machine starts up. So I've found that the handy nickel fits perfectly between the keys, holding them down until it's time to rebuild. Just remember to take the nickel out of the keyboard when the process is finished.—*John David Coppola*

Thanks for your five cents' worth.—*Max*



A new use for spare change.

NEXT MONTH

THE ULTIMATE UPGRADE AND REPAIR GUIDE

We show you how to make your Mac faster and more capable, and how to bring it back from the dead.

STORAGE SPECTACULAR

If it spins and stores your files and apps, we've got it covered. We put the universe of Mac storage options to the test, and tell you which one is right for you.

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Our annual collection of April Fools' Day pranks, gastrointestinal dissection tips, supermodels' tapioca-pudding recipes, and the teleological ruminations of NFL defensive linemen.

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Contest results will appear in the Jul/03 issue.



This LaCie CD-RW drive could change your life.

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The judges will be MacAddict editors and they will base their decision on the following equally weighted criteria: 33.3 percent humor, 33.3 percent creativity, and 33.3 percent quality of execution. All entries must be received no later than March 31, 2003, with the winner announced on or around July 2003. By entering this contest, you agree that Future Network USA may use your name, likeness, and Web site for promotional purposes without further payment. All prizes will be awarded and no minimum number of entries is required. Prizes won by minors will be awarded to their parents or legal guardians. Future Network USA is not responsible for damages or expenses that the winners might incur as a result of this contest or the receipt of a prize, and winners are responsible for income taxes based on the value of the prize received. A list of winners may also be obtained by sending a stamped, self-addressed envelope to Future Network USA, c/o MacAddict contest, 150 North Hill Dr., Brisbane, CA 94005. This contest is limited to residents of the United States. No purchase necessary; void in Arizona, Maryland, Vermont, Puerto Rico, and where prohibited by law.

PHOTOGRAPH COURTESY OF LACIE

**MAC EXPO
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APPLE'S 2003 STRATEGY

ENERGIZED EDUCATION EFFORTS

Apple stunned the huddled masses at January's Mac Expo with a new lineup aimed at recapturing the pride of Cupertino's once-unassailable lead in the all-important education market. "Hook 'em young, that's our goal," said Mary Jane Hookah, Apple's director of prepubescent marketing. "If they're ours at five, they're ours till they die."

Steve Jobs introduced a troika of standard-bearers to gawking Expo-goers, each component designed to appeal to a different segment of the education market. For the toddler there's the eTablet, a touchscreen-equipped creativity enhancer. The more traditional eMac II targets the inmates of K through 6 classrooms, while the eCube is designed to sit proudly on teacher's desk.



eTablet: My First Mac

Microsoft has already cornered the white-collar tablet-PC market with its Windows XP Tablet PC Edition, so Apple has designed its new tablet not for adults too clumsy to use a keyboard (Microsoft's tactic), but for kids too young to type. The colorful eTablet's bundled software includes eFingerPainter Pro Deluxe Studio Gold Edition, which takes advantage of the eTablet's droolproof touchscreen, and iTunes eJunior, which comes preloaded with Raffi's entire oeuvre.



eMac II: Born to Flunk

Apple intended the original eMac only for the education market, but consumer demand soon forced Apple to make it available to all. The eMac II—the weakest link in the new eEd offerings—is far less impressive, and is not likely to hack its way out of the blackboard jungle any time soon. Its oh-so-retro iMac-throwback look may at first blush seem adorable, but its tiny screen, Chiclet-size keys, and kludgy mouse will doom it to an eternity of sticky fingers, botched porn downloads, and spilt Sunny D.



PHOTOGRAPH BY MARK MADEO

eCube: The Box Is Back

Rumor has it that the late lamented Cube was Steve's all-time favorite Mac design. However, even the Man Himself must bow to sales figures—and when the Cube didn't sell, the Cube got the ax. But Steve's a stubborn guy, and he's brought back the Cube's cubic cubiosity in the new eCube. To add to the warm and fuzzy nostalgia, the eCube sports an old-style multicolored Apple logo, rendered in the translucent colored pegs of state-of-the-art Lite-Brite technology. Nice.

GEEKY SWEETIE

As part of its education blitzkrieg, Apple is working to upgrade the image of geeks, nerds, and other pocket-protector-wearing bully magnets. Its reasoning is simple: The cooler it is to be a code warrior, the more Macs will flood into schools.

In a private meeting away from the Expo floor, Apple gave *MacAddict* a sneak peek at its latest weapon in the fight to make the world safe for budding gearheads: Geeky Sweetie, a cute-as-a-bug replica of that classmate in the front row who actually understands the difference between a sine and a cosine—but with a surprise inside. Just slide a tiny lever up his tummy, and out pops a yummy lollipop guaranteed to create a subliminal linking of geeks and oral satisfaction.

When asked if schools could request Geeky Sweeties preloaded with Ritalin-laced candy, Apple declined to comment.



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Geek flipping his wig.



Geek bearing gifts.

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